


# RTEMS POSIX 1003.1 Compliance Guide

*Release 6.3 (1st November 2026)*

© 1988-2026 RTEMS Project and contributors

# CONTENTS


**1 Preface** **3**

**2 Standards** **5**

**3 RTEMS Complete Profile** **7**

3.1 Summary . . . 8
3.2 <aio.h> . . . 9
3.3 <arpa/inet.h> . . . 10
3.4 <assert.h> . . . 11
3.5 <complex.h> . . . 12
3.6 <ctype.h> . . . 14
3.7 <devctl.h> . . . 15
3.8 <dirent.h> . . . 16
3.9 <dlfcn.h> . . . 17
3.10 <errno.h> . . . 18
3.11 <fcntl.h> . . . 19
3.12 <fenv.h> . . . 20
3.13 <fmtmsg.h> . . . 21
3.14 <fnmatch.h> . . . 22
3.15 <ftw.h> . . . 23
3.16 <glob.h> . . . 24
3.17 <grp.h> . . . 25
3.18 <iconv.h> . . . 26
3.19 <inttypes.h> . . . 27
3.20 <langinfo.h> . . . 28
3.21 <libgen.h> . . . 29
3.22 <libintl.h> . . . 30
3.23 <locale.h> . . . 31
3.24 <math.h> . . . 32
3.25 <monetary.h> . . . 38
3.26 <mqueue.h> . . . 39
3.27 <ndbm.h> . . . 40
3.28 <net/if.h> . . . 41
3.29 <netdb.h> . . . 42
3.30 <nl_types.h> . . . 43
3.31 <poll.h> . . . 44
3.32 <pthread.h> . . . 45
3.33 <pwd.h> . . . 49

3.34 <regex.h> . . . 50
3.35 <sched.h> . . . 51
3.36 <search.h> . . . 52
3.37 <semaphore.h> . . . 53
3.38 <setjmp.h> . . . 54
3.39 <signal.h> . . . 55
3.40 <spawn.h> . . . 56
3.41 <stdarg.h> . . . 57
3.42 <stdatomic.h> . . . 58
3.43 <stddef.h> . . . 59
3.44 <stdint.h> . . . 60
3.45 <stdio.h> . . . 61
3.46 <stdlib.h> . . . 64
3.47 <string.h> . . . 67
3.48 <strings.h> . . . 69
3.49 <stropts.h> . . . 70
3.50 <sys/ipc.h> . . . 71
3.51 <sys/mman.h> . . . 72
3.52 <sys/msg.h> . . . 73
3.53 <sys/resource.h> . . . 74
3.54 <sys/select.h> . . . 75
3.55 <sys/sem.h> . . . 76
3.56 <sys/shm.h> . . . 77
3.57 <sys/socket.h> . . . 78
3.58 <sys/stat.h> . . . 79
3.59 <sys/statvfs.h> . . . 80
3.60 <sys/time.h> . . . 81
3.61 <sys/uio.h> . . . 82
3.62 <sys/utsname.h> . . . 83
3.63 <sys/wait.h> . . . 84
3.64 <syslog.h> . . . 85
3.65 <termios.h> . . . 86
3.66 <threads.h> . . . 87
3.67 <time.h> . . . 88
3.68 <trace.h> . . . 90
3.69 <ulimit.h> . . . 92
3.70 <unistd.h> . . . 93
3.71 <utime.h> . . . 96
3.72 <utmpx.h> . . . 97
3.73 <wchar.h> . . . 98
3.74 <wctype.h> . . . 101
3.75 <wordexp.h> . . . 103

**4 POSIX-2024 (Issue 8) 105**
4.1 Summary . . . 106
4.2 <aio.h> . . . 107
4.3 <arpa/inet.h> . . . 108
4.4 <assert.h> . . . 109
4.5 <complex.h> . . . 110
4.6 <ctype.h> . . . 112
4.7 <dirent.h> . . . 113

4.8 <dlfcn.h> . . . 114
4.9 <errno.h> . . . 115
4.10 <fcntl.h> . . . 116
4.11 <fenv.h> . . . 117
4.12 <fmtmsg.h> . . . 118
4.13 <fnmatch.h> . . . 119
4.14 <ftw.h> . . . 120
4.15 <glob.h> . . . 121
4.16 <grp.h> . . . 122
4.17 <iconv.h> . . . 123
4.18 <inttypes.h> . . . 124
4.19 <langinfo.h> . . . 125
4.20 <libgen.h> . . . 126
4.21 <libintl.h> . . . 127
4.22 <locale.h> . . . 128
4.23 <math.h> . . . 129
4.24 <monetary.h> . . . 135
4.25 <mqueue.h> . . . 136
4.26 <ndbm.h> . . . 137
4.27 <net/if.h> . . . 138
4.28 <netdb.h> . . . 139
4.29 <nl_types.h> . . . 140
4.30 <poll.h> . . . 141
4.31 <pthread.h> . . . 142
4.32 <pwd.h> . . . 145
4.33 <regex.h> . . . 146
4.34 <sched.h> . . . 147
4.35 <search.h> . . . 148
4.36 <semaphore.h> . . . 149
4.37 <setjmp.h> . . . 150
4.38 <signal.h> . . . 151
4.39 <spawn.h> . . . 152
4.40 <stdarg.h> . . . 153
4.41 <stdatomic.h> . . . 154
4.42 <stddef.h> . . . 155
4.43 <stdint.h> . . . 156
4.44 <stdio.h> . . . 157
4.45 <stdlib.h> . . . 160
4.46 <string.h> . . . 163
4.47 <strings.h> . . . 165
4.48 <sys/ipc.h> . . . 166
4.49 <sys/mman.h> . . . 167
4.50 <sys/msg.h> . . . 168
4.51 <sys/resource.h> . . . 169
4.52 <sys/select.h> . . . 170
4.53 <sys/sem.h> . . . 171
4.54 <sys/shm.h> . . . 172
4.55 <sys/socket.h> . . . 173
4.56 <sys/stat.h> . . . 174
4.57 <sys/statvfs.h> . . . 175
4.58 <sys/time.h> . . . 176

4.59 <sys/uio.h> . . . 177
4.60 <sys/utsname.h> . . . 178
4.61 <sys/wait.h> . . . 179
4.62 <syslog.h> . . . 180
4.63 <termios.h> . . . 181
4.64 <threads.h> . . . 182
4.65 <time.h> . . . 183
4.66 <unistd.h> . . . 185
4.67 <utmpx.h> . . . 188
4.68 <wchar.h> . . . 189
4.69 <wctype.h> . . . 192
4.70 <wordexp.h> . . . 194

**5 POSIX-2017 (Issue 7) 195**
5.1 Summary . . . 196
5.2 <aio.h> . . . 197
5.3 <arpa/inet.h> . . . 198
5.4 <assert.h> . . . 199
5.5 <complex.h> . . . 200
5.6 <ctype.h> . . . 202
5.7 <dirent.h> . . . 203
5.8 <dlfcn.h> . . . 204
5.9 <errno.h> . . . 205
5.10 <fcntl.h> . . . 206
5.11 <fenv.h> . . . 207
5.12 <fmtmsg.h> . . . 208
5.13 <fnmatch.h> . . . 209
5.14 <ftw.h> . . . 210
5.15 <glob.h> . . . 211
5.16 <grp.h> . . . 212
5.17 <iconv.h> . . . 213
5.18 <inttypes.h> . . . 214
5.19 <langinfo.h> . . . 215
5.20 <libgen.h> . . . 216
5.21 <locale.h> . . . 217
5.22 <math.h> . . . 218
5.23 <monetary.h> . . . 224
5.24 <mqueue.h> . . . 225
5.25 <ndbm.h> . . . 226
5.26 <net/if.h> . . . 227
5.27 <netdb.h> . . . 228
5.28 <nl_types.h> . . . 229
5.29 <poll.h> . . . 230
5.30 <pthread.h> . . . 231
5.31 <pwd.h> . . . 235
5.32 <regex.h> . . . 236
5.33 <sched.h> . . . 237
5.34 <search.h> . . . 238
5.35 <semaphore.h> . . . 239
5.36 <setjmp.h> . . . 240
5.37 <signal.h> . . . 241

5.38 <spawn.h> . . . 242
5.39 <stdarg.h> . . . 243
5.40 <stddef.h> . . . 244
5.41 <stdint.h> . . . 245
5.42 <stdio.h> . . . 246
5.43 <stdlib.h> . . . 249
5.44 <string.h> . . . 252
5.45 <strings.h> . . . 254
5.46 <stropts.h> . . . 255
5.47 <sys/ipc.h> . . . 256
5.48 <sys/mman.h> . . . 257
5.49 <sys/msg.h> . . . 258
5.50 <sys/resource.h> . . . 259
5.51 <sys/select.h> . . . 260
5.52 <sys/sem.h> . . . 261
5.53 <sys/shm.h> . . . 262
5.54 <sys/socket.h> . . . 263
5.55 <sys/stat.h> . . . 264
5.56 <sys/statvfs.h> . . . 265
5.57 <sys/time.h> . . . 266
5.58 <sys/uio.h> . . . 267
5.59 <sys/utsname.h> . . . 268
5.60 <sys/wait.h> . . . 269
5.61 <syslog.h> . . . 270
5.62 <termios.h> . . . 271
5.63 <time.h> . . . 272
5.64 <trace.h> . . . 274
5.65 <ulimit.h> . . . 276
5.66 <unistd.h> . . . 277
5.67 <utime.h> . . . 280
5.68 <utmpx.h> . . . 281
5.69 <wchar.h> . . . 282
5.70 <wctype.h> . . . 285
5.71 <wordexp.h> . . . 287

**6 POSIX-2008 (Issue 6 TC2) 289**
6.1 Summary . . . 290
6.2 <aio.h> . . . 291
6.3 <arpa/inet.h> . . . 292
6.4 <assert.h> . . . 293
6.5 <complex.h> . . . 294
6.6 <ctype.h> . . . 296
6.7 <dirent.h> . . . 297
6.8 <dlfcn.h> . . . 298
6.9 <errno.h> . . . 299
6.10 <fcntl.h> . . . 300
6.11 <fenv.h> . . . 301
6.12 <fmtmsg.h> . . . 302
6.13 <fnmatch.h> . . . 303
6.14 <ftw.h> . . . 304
6.15 <glob.h> . . . 305

6.16 <grp.h> . . . 306
6.17 <iconv.h> . . . 307
6.18 <inttypes.h> . . . 308
6.19 <langinfo.h> . . . 309
6.20 <libgen.h> . . . 310
6.21 <locale.h> . . . 311
6.22 <math.h> . . . 312
6.23 <monetary.h> . . . 318
6.24 <mqueue.h> . . . 319
6.25 <ndbm.h> . . . 320
6.26 <net/if.h> . . . 321
6.27 <netdb.h> . . . 322
6.28 <nl_types.h> . . . 323
6.29 <poll.h> . . . 324
6.30 <pthread.h> . . . 325
6.31 <pwd.h> . . . 329
6.32 <regex.h> . . . 330
6.33 <sched.h> . . . 331
6.34 <search.h> . . . 332
6.35 <semaphore.h> . . . 333
6.36 <setjmp.h> . . . 334
6.37 <signal.h> . . . 335
6.38 <spawn.h> . . . 336
6.39 <stdarg.h> . . . 337
6.40 <stddef.h> . . . 338
6.41 <stdint.h> . . . 339
6.42 <stdio.h> . . . 340
6.43 <stdlib.h> . . . 343
6.44 <string.h> . . . 346
6.45 <strings.h> . . . 348
6.46 <stropts.h> . . . 349
6.47 <sys/ipc.h> . . . 350
6.48 <sys/mman.h> . . . 351
6.49 <sys/msg.h> . . . 352
6.50 <sys/resource.h> . . . 353
6.51 <sys/select.h> . . . 354
6.52 <sys/sem.h> . . . 355
6.53 <sys/shm.h> . . . 356
6.54 <sys/socket.h> . . . 357
6.55 <sys/stat.h> . . . 358
6.56 <sys/statvfs.h> . . . 359
6.57 <sys/time.h> . . . 360
6.58 <sys/uio.h> . . . 361
6.59 <sys/utsname.h> . . . 362
6.60 <sys/wait.h> . . . 363
6.61 <syslog.h> . . . 364
6.62 <termios.h> . . . 365
6.63 <time.h> . . . 366
6.64 <trace.h> . . . 368
6.65 <ulimit.h> . . . 370
6.66 <unistd.h> . . . 371

6.67 <utime.h> . . . 374
6.68 <utmpx.h> . . . 375
6.69 <wchar.h> . . . 376
6.70 <wctype.h> . . . 379
6.71 <wordexp.h> . . . 381

**7 POSIX-2003 (Issue 6) 383**
7.1 Summary . . . 384
7.2 <aio.h> . . . 385
7.3 <arpa/inet.h> . . . 386
7.4 <assert.h> . . . 387
7.5 <complex.h> . . . 388
7.6 <ctype.h> . . . 390
7.7 <dirent.h> . . . 391
7.8 <dlfcn.h> . . . 392
7.9 <errno.h> . . . 393
7.10 <fcntl.h> . . . 394
7.11 <fenv.h> . . . 395
7.12 <fmtmsg.h> . . . 396
7.13 <fnmatch.h> . . . 397
7.14 <ftw.h> . . . 398
7.15 <glob.h> . . . 399
7.16 <grp.h> . . . 400
7.17 <iconv.h> . . . 401
7.18 <inttypes.h> . . . 402
7.19 <langinfo.h> . . . 403
7.20 <libgen.h> . . . 404
7.21 <locale.h> . . . 405
7.22 <math.h> . . . 406
7.23 <monetary.h> . . . 412
7.24 <mqueue.h> . . . 413
7.25 <ndbm.h> . . . 414
7.26 <net/if.h> . . . 415
7.27 <netdb.h> . . . 416
7.28 <nl_types.h> . . . 417
7.29 <poll.h> . . . 418
7.30 <pthread.h> . . . 419
7.31 <pwd.h> . . . 422
7.32 <regex.h> . . . 423
7.33 <sched.h> . . . 424
7.34 <search.h> . . . 425
7.35 <semaphore.h> . . . 426
7.36 <setjmp.h> . . . 427
7.37 <signal.h> . . . 428
7.38 <spawn.h> . . . 429
7.39 <stdarg.h> . . . 430
7.40 <stddef.h> . . . 431
7.41 <stdint.h> . . . 432
7.42 <stdio.h> . . . 433
7.43 <stdlib.h> . . . 435
7.44 <string.h> . . . 438

7.45 <strings.h> . . . 439
7.46 <stropts.h> . . . 440
7.47 <sys/ipc.h> . . . 441
7.48 <sys/mman.h> . . . 442
7.49 <sys/msg.h> . . . 443
7.50 <sys/resource.h> . . . 444
7.51 <sys/select.h> . . . 445
7.52 <sys/sem.h> . . . 446
7.53 <sys/shm.h> . . . 447
7.54 <sys/socket.h> . . . 448
7.55 <sys/stat.h> . . . 449
7.56 <sys/statvfs.h> . . . 450
7.57 <sys/time.h> . . . 451
7.58 <sys/uio.h> . . . 452
7.59 <sys/utsname.h> . . . 453
7.60 <sys/wait.h> . . . 454
7.61 <syslog.h> . . . 455
7.62 <termios.h> . . . 456
7.63 <time.h> . . . 457
7.64 <trace.h> . . . 459
7.65 <ulimit.h> . . . 461
7.66 <unistd.h> . . . 462
7.67 <utime.h> . . . 465
7.68 <utmpx.h> . . . 466
7.69 <wchar.h> . . . 467
7.70 <wctype.h> . . . 469
7.71 <wordexp.h> . . . 470

**8 POSIX PSE51 - Minimal 471**
8.1 Summary . . . 472
8.2 <ctype.h> . . . 473
8.3 <errno.h> . . . 474
8.4 <fcntl.h> . . . 475
8.5 <fenv.h> . . . 476
8.6 <inttypes.h> . . . 477
8.7 <locale.h> . . . 478
8.8 <pthread.h> . . . 479
8.9 <sched.h> . . . 482
8.10 <semaphore.h> . . . 483
8.11 <setjmp.h> . . . 484
8.12 <signal.h> . . . 485
8.13 <stdarg.h> . . . 486
8.14 <stddef.h> . . . 487
8.15 <stdio.h> . . . 488
8.16 <stdlib.h> . . . 490
8.17 <string.h> . . . 491
8.18 <sys/mman.h> . . . 492
8.19 <sys/utsname.h> . . . 493
8.20 <time.h> . . . 494
8.21 <unistd.h> . . . 495

**9 POSIX PSE52 - Real-Time Controller 497**

9.1 Summary . . . 498
9.2 <complex.h> . . . 499
9.3 <ctype.h> . . . 501
9.4 <dirent.h> . . . 502
9.5 <errno.h> . . . 503
9.6 <fcntl.h> . . . 504
9.7 <fenv.h> . . . 505
9.8 <inttypes.h> . . . 506
9.9 <locale.h> . . . 507
9.10 <math.h> . . . 508
9.11 <mqueue.h> . . . 514
9.12 <pthread.h> . . . 515
9.13 <sched.h> . . . 518
9.14 <semaphore.h> . . . 519
9.15 <setjmp.h> . . . 520
9.16 <signal.h> . . . 521
9.17 <stdarg.h> . . . 522
9.18 <stddef.h> . . . 523
9.19 <stdio.h> . . . 524
9.20 <stdlib.h> . . . 526
9.21 <string.h> . . . 527
9.22 <sys/mman.h> . . . 528
9.23 <sys/stat.h> . . . 529
9.24 <sys/utsname.h> . . . 530
9.25 <time.h> . . . 531
9.26 <trace.h> . . . 532
9.27 <unistd.h> . . . 534
9.28 <utime.h> . . . 535

**10 POSIX PSE53 - Dedicated 537**
10.1 Summary . . . 538
10.2 <aio.h> . . . 539
10.3 <arpa/inet.h> . . . 540
10.4 <assert.h> . . . 541
10.5 <complex.h> . . . 542
10.6 <ctype.h> . . . 544
10.7 <dirent.h> . . . 545
10.8 <errno.h> . . . 546
10.9 <fcntl.h> . . . 547
10.10 <fenv.h> . . . 548
10.11 <inttypes.h> . . . 549
10.12 <locale.h> . . . 550
10.13 <math.h> . . . 551
10.14 <mqueue.h> . . . 557
10.15 <net/if.h> . . . 558
10.16 <netdb.h> . . . 559
10.17 <pthread.h> . . . 560
10.18 <sched.h> . . . 563
10.19 <semaphore.h> . . . 564
10.20 <setjmp.h> . . . 565
10.21 <signal.h> . . . 566

10.22 <spawn.h> . . . 567
10.23 <stdarg.h> . . . 568
10.24 <stddef.h> . . . 569
10.25 <stdio.h> . . . 570
10.26 <stdlib.h> . . . 572
10.27 <string.h> . . . 574
10.28 <sys/mman.h> . . . 575
10.29 <sys/select.h> . . . 576
10.30 <sys/socket.h> . . . 577
10.31 <sys/stat.h> . . . 578
10.32 <sys/time.h> . . . 579
10.33 <sys/utsname.h> . . . 580
10.34 <sys/wait.h> . . . 581
10.35 <time.h> . . . 582
10.36 <trace.h> . . . 583
10.37 <unistd.h> . . . 585
10.38 <utime.h> . . . 587

**11 POSIX PSE54 - Multipurpose 589**
11.1 Summary . . . 590
11.2 <aio.h> . . . 591
11.3 <arpa/inet.h> . . . 592
11.4 <assert.h> . . . 593
11.5 <complex.h> . . . 594
11.6 <ctype.h> . . . 596
11.7 <dirent.h> . . . 597
11.8 <dlfcn.h> . . . 598
11.9 <errno.h> . . . 599
11.10 <fcntl.h> . . . 600
11.11 <fenv.h> . . . 601
11.12 <fnmatch.h> . . . 602
11.13 <glob.h> . . . 603
11.14 <grp.h> . . . 604
11.15 <inttypes.h> . . . 605
11.16 <locale.h> . . . 606
11.17 <math.h> . . . 607
11.18 <mqueue.h> . . . 613
11.19 <net/if.h> . . . 614
11.20 <netdb.h> . . . 615
11.21 <pthread.h> . . . 616
11.22 <pwd.h> . . . 619
11.23 <regex.h> . . . 620
11.24 <sched.h> . . . 621
11.25 <semaphore.h> . . . 622
11.26 <setjmp.h> . . . 623
11.27 <signal.h> . . . 624
11.28 <spawn.h> . . . 625
11.29 <stdarg.h> . . . 626
11.30 <stddef.h> . . . 627
11.31 <stdio.h> . . . 628
11.32 <stdlib.h> . . . 630

11.33 <string.h> . . . 632
11.34 <sys/mman.h> . . . 633
11.35 <sys/select.h> . . . 634
11.36 <sys/socket.h> . . . 635
11.37 <sys/stat.h> . . . 636
11.38 <sys/time.h> . . . 637
11.39 <sys/utsname.h> . . . 638
11.40 <sys/wait.h> . . . 639
11.41 <syslog.h> . . . 640
11.42 <termios.h> . . . 641
11.43 <time.h> . . . 642
11.44 <trace.h> . . . 643
11.45 <unistd.h> . . . 645
11.46 <utime.h> . . . 647
11.47 <wchar.h> . . . 648
11.48 <wctype.h> . . . 650
11.49 <wordexp.h> . . . 651

**12 C99 Standard Library** **653**
12.1 Summary . . . 654
12.2 <assert.h> . . . 655
12.3 <complex.h> . . . 656
12.4 <ctype.h> . . . 658
12.5 <errno.h> . . . 659
12.6 <fenv.h> . . . 660
12.7 <inttypes.h> . . . 661
12.8 <locale.h> . . . 662
12.9 <math.h> . . . 663
12.10 <setjmp.h> . . . 669
12.11 <signal.h> . . . 670
12.12 <stdarg.h> . . . 671
12.13 <stddef.h> . . . 672
12.14 <stdint.h> . . . 673
12.15 <stdio.h> . . . 674
12.16 <stdlib.h> . . . 676
12.17 <string.h> . . . 678
12.18 <time.h> . . . 679
12.19 <wchar.h> . . . 680
12.20 <wctype.h> . . . 682

**13 C11 Standard Library** **683**
13.1 Summary . . . 684
13.2 <assert.h> . . . 685
13.3 <complex.h> . . . 686
13.4 <ctype.h> . . . 688
13.5 <errno.h> . . . 689
13.6 <fenv.h> . . . 690
13.7 <inttypes.h> . . . 691
13.8 <locale.h> . . . 692
13.9 <math.h> . . . 693
13.10 <setjmp.h> . . . 699
13.11 <signal.h> . . . 700

13.12 <stdarg.h> . . . 701
13.13 <stdatomic.h> . . . 702
13.14 <stddef.h> . . . 703
13.15 <stdint.h> . . . 704
13.16 <stdio.h> . . . 705
13.17 <stdlib.h> . . . 707
13.18 <string.h> . . . 709
13.19 <threads.h> . . . 710
13.20 <time.h> . . . 711
13.21 <wchar.h> . . . 712
13.22 <wctype.h> . . . 714

**14 C17 Standard Library** **715**
14.1 Summary . . . 716
14.2 <assert.h> . . . 717
14.3 <complex.h> . . . 718
14.4 <ctype.h> . . . 720
14.5 <errno.h> . . . 721
14.6 <fenv.h> . . . 722
14.7 <inttypes.h> . . . 723
14.8 <locale.h> . . . 724
14.9 <math.h> . . . 725
14.10 <setjmp.h> . . . 731
14.11 <signal.h> . . . 732
14.12 <stdarg.h> . . . 733
14.13 <stdatomic.h> . . . 734
14.14 <stddef.h> . . . 735
14.15 <stdio.h> . . . 736
14.16 <stdlib.h> . . . 738
14.17 <string.h> . . . 740
14.18 <threads.h> . . . 741
14.19 <time.h> . . . 742
14.20 <wchar.h> . . . 743
14.21 <wctype.h> . . . 745

**15 FACE Technical Standard, Edition 2.1 Security** **747**
15.1 Summary . . . 748
15.2 <arpa/inet.h> . . . 749
15.3 <ctype.h> . . . 750
15.4 <devctl.h> . . . 751
15.5 <errno.h> . . . 752
15.6 <math.h> . . . 753
15.7 <netdb.h> . . . 754
15.8 <pthread.h> . . . 755
15.9 <sched.h> . . . 757
15.10 <semaphore.h> . . . 758
15.11 <signal.h> . . . 759
15.12 <stdlib.h> . . . 760
15.13 <string.h> . . . 761
15.14 <sys/mman.h> . . . 762
15.15 <sys/socket.h> . . . 763
15.16 <sys/stat.h> . . . 764

15.17 <time.h> . . . 765
15.18 <unistd.h> . . . 766

**16 FACE Technical Standard, Edition 2.1 Safety Base 767**
16.1 Summary . . . 768
16.2 <arpa/inet.h> . . . 769
16.3 <ctype.h> . . . 770
16.4 <devctl.h> . . . 771
16.5 <dirent.h> . . . 772
16.6 <errno.h> . . . 773
16.7 <fcntl.h> . . . 774
16.8 <math.h> . . . 775
16.9 <mqueue.h> . . . 776
16.10 <netdb.h> . . . 777
16.11 <pthread.h> . . . 778
16.12 <sched.h> . . . 780
16.13 <semaphore.h> . . . 781
16.14 <signal.h> . . . 782
16.15 <stdio.h> . . . 783
16.16 <stdlib.h> . . . 784
16.17 <string.h> . . . 785
16.18 <sys/mman.h> . . . 786
16.19 <sys/select.h> . . . 787
16.20 <sys/socket.h> . . . 788
16.21 <sys/stat.h> . . . 789
16.22 <time.h> . . . 790
16.23 <unistd.h> . . . 791

**17 FACE Technical Standard, Edition 2.1 Safety Extended 793**
17.1 Summary . . . 794
17.2 <arpa/inet.h> . . . 795
17.3 <ctype.h> . . . 796
17.4 <devctl.h> . . . 797
17.5 <dirent.h> . . . 798
17.6 <errno.h> . . . 799
17.7 <fcntl.h> . . . 800
17.8 <math.h> . . . 801
17.9 <mqueue.h> . . . 802
17.10 <netdb.h> . . . 803
17.11 <pthread.h> . . . 804
17.12 <sched.h> . . . 806
17.13 <semaphore.h> . . . 807
17.14 <setjmp.h> . . . 808
17.15 <signal.h> . . . 809
17.16 <spawn.h> . . . 810
17.17 <stdarg.h> . . . 811
17.18 <stdio.h> . . . 812
17.19 <stdlib.h> . . . 813
17.20 <string.h> . . . 814
17.21 <sys/mman.h> . . . 815
17.22 <sys/select.h> . . . 816
17.23 <sys/socket.h> . . . 817

17.24 <sys/stat.h> . . . 818
17.25 <sys/time.h> . . . 819
17.26 <sys/utsname.h> . . . 820
17.27 <sys/wait.h> . . . 821
17.28 <time.h> . . . 822
17.29 <unistd.h> . . . 823

**18 FACE Technical Standard, Edition 2.1 General Purpose 825**
18.1 Summary . . . 826
18.2 <aio.h> . . . 827
18.3 <arpa/inet.h> . . . 828
18.4 <assert.h> . . . 829
18.5 <complex.h> . . . 830
18.6 <ctype.h> . . . 832
18.7 <devctl.h> . . . 833
18.8 <dirent.h> . . . 834
18.9 <errno.h> . . . 835
18.10 <fcntl.h> . . . 836
18.11 <fenv.h> . . . 837
18.12 <inttypes.h> . . . 838
18.13 <locale.h> . . . 839
18.14 <math.h> . . . 840
18.15 <mqueue.h> . . . 846
18.16 <net/if.h> . . . 847
18.17 <netdb.h> . . . 848
18.18 <pthread.h> . . . 849
18.19 <sched.h> . . . 852
18.20 <semaphore.h> . . . 853
18.21 <setjmp.h> . . . 854
18.22 <signal.h> . . . 855
18.23 <spawn.h> . . . 856
18.24 <stdarg.h> . . . 857
18.25 <stdio.h> . . . 858
18.26 <stdlib.h> . . . 860
18.27 <string.h> . . . 862
18.28 <sys/mman.h> . . . 863
18.29 <sys/select.h> . . . 864
18.30 <sys/socket.h> . . . 865
18.31 <sys/stat.h> . . . 866
18.32 <sys/time.h> . . . 867
18.33 <sys/utsname.h> . . . 868
18.34 <sys/wait.h> . . . 869
18.35 <time.h> . . . 870
18.36 <unistd.h> . . . 871
18.37 <wchar.h> . . . 873
18.38 <wctype.h> . . . 875

**19 FACE Technical Standard, Edition 3.0 Security 877**
19.1 Summary . . . 878
19.2 <arpa/inet.h> . . . 879
19.3 <ctype.h> . . . 880
19.4 <devctl.h> . . . 881

19.5 <errno.h> . . . 882
19.6 <math.h> . . . 883
19.7 <netdb.h> . . . 884
19.8 <pthread.h> . . . 885
19.9 <sched.h> . . . 887
19.10 <semaphore.h> . . . 888
19.11 <signal.h> . . . 889
19.12 <stddef.h> . . . 890
19.13 <stdint.h> . . . 891
19.14 <stdlib.h> . . . 892
19.15 <string.h> . . . 893
19.16 <sys/mman.h> . . . 894
19.17 <sys/socket.h> . . . 895
19.18 <sys/stat.h> . . . 896
19.19 <time.h> . . . 897
19.20 <unistd.h> . . . 898

**20 FACE Technical Standard, Edition 3.0 Safety Base 899**
20.1 Summary . . . 900
20.2 <arpa/inet.h> . . . 901
20.3 <ctype.h> . . . 902
20.4 <devctl.h> . . . 903
20.5 <dirent.h> . . . 904
20.6 <errno.h> . . . 905
20.7 <fcntl.h> . . . 906
20.8 <math.h> . . . 907
20.9 <mqueue.h> . . . 908
20.10 <netdb.h> . . . 909
20.11 <pthread.h> . . . 910
20.12 <sched.h> . . . 912
20.13 <semaphore.h> . . . 913
20.14 <signal.h> . . . 914
20.15 <stddef.h> . . . 915
20.16 <stdint.h> . . . 916
20.17 <stdio.h> . . . 917
20.18 <stdlib.h> . . . 918
20.19 <string.h> . . . 919
20.20 <sys/mman.h> . . . 920
20.21 <sys/select.h> . . . 921
20.22 <sys/socket.h> . . . 922
20.23 <sys/stat.h> . . . 923
20.24 <time.h> . . . 924
20.25 <unistd.h> . . . 925

**21 FACE Technical Standard, Edition 3.0 Safety Extended 927**
21.1 Summary . . . 928
21.2 <arpa/inet.h> . . . 929
21.3 <ctype.h> . . . 930
21.4 <devctl.h> . . . 931
21.5 <dirent.h> . . . 932
21.6 <errno.h> . . . 933
21.7 <fcntl.h> . . . 934

21.8 <math.h> . . . 935
21.9 <mqueue.h> . . . 936
21.10 <netdb.h> . . . 937
21.11 <pthread.h> . . . 938
21.12 <sched.h> . . . 940
21.13 <semaphore.h> . . . 941
21.14 <setjmp.h> . . . 942
21.15 <signal.h> . . . 943
21.16 <stdarg.h> . . . 944
21.17 <stddef.h> . . . 945
21.18 <stdint.h> . . . 946
21.19 <stdio.h> . . . 947
21.20 <stdlib.h> . . . 948
21.21 <string.h> . . . 949
21.22 <sys/mman.h> . . . 950
21.23 <sys/select.h> . . . 951
21.24 <sys/socket.h> . . . 952
21.25 <sys/stat.h> . . . 953
21.26 <sys/utsname.h> . . . 954
21.27 <time.h> . . . 955
21.28 <unistd.h> . . . 956

**22 FACE Technical Standard, Edition 3.0 General Purpose 957**
22.1 Summary . . . 958
22.2 <aio.h> . . . 959
22.3 <arpa/inet.h> . . . 960
22.4 <complex.h> . . . 961
22.5 <ctype.h> . . . 963
22.6 <devctl.h> . . . 964
22.7 <dirent.h> . . . 965
22.8 <errno.h> . . . 966
22.9 <fcntl.h> . . . 967
22.10 <fenv.h> . . . 968
22.11 <inttypes.h> . . . 969
22.12 <locale.h> . . . 970
22.13 <math.h> . . . 971
22.14 <mqueue.h> . . . 977
22.15 <net/if.h> . . . 978
22.16 <netdb.h> . . . 979
22.17 <pthread.h> . . . 980
22.18 <sched.h> . . . 983
22.19 <semaphore.h> . . . 984
22.20 <setjmp.h> . . . 985
22.21 <signal.h> . . . 986
22.22 <stdarg.h> . . . 987
22.23 <stddef.h> . . . 988
22.24 <stdint.h> . . . 989
22.25 <stdio.h> . . . 990
22.26 <stdlib.h> . . . 992
22.27 <string.h> . . . 994
22.28 <sys/mman.h> . . . 995

22.29 <sys/select.h> . . . 996
22.30 <sys/socket.h> . . . 997
22.31 <sys/stat.h> . . . 998
22.32 <sys/utsname.h> . . . 999
22.33 <time.h> . . . 1000
22.34 <unistd.h> . . . 1001
22.35 <wchar.h> . . . 1003
22.36 <wctype.h> . . . 1004

**23 FACE Technical Standard, Edition 3.1 Security 1005**
23.1 Summary . . . 1006
23.2 <arpa/inet.h> . . . 1007
23.3 <ctype.h> . . . 1008
23.4 <devctl.h> . . . 1009
23.5 <errno.h> . . . 1010
23.6 <math.h> . . . 1011
23.7 <netdb.h> . . . 1012
23.8 <pthread.h> . . . 1013
23.9 <sched.h> . . . 1015
23.10 <semaphore.h> . . . 1016
23.11 <signal.h> . . . 1017
23.12 <stddef.h> . . . 1018
23.13 <stdint.h> . . . 1019
23.14 <stdlib.h> . . . 1020
23.15 <string.h> . . . 1021
23.16 <sys/mman.h> . . . 1022
23.17 <sys/socket.h> . . . 1023
23.18 <sys/stat.h> . . . 1024
23.19 <time.h> . . . 1025
23.20 <unistd.h> . . . 1026

**24 FACE Technical Standard, Edition 3.1 Safety Base 1027**
24.1 Summary . . . 1028
24.2 <arpa/inet.h> . . . 1029
24.3 <ctype.h> . . . 1030
24.4 <devctl.h> . . . 1031
24.5 <dirent.h> . . . 1032
24.6 <errno.h> . . . 1033
24.7 <fcntl.h> . . . 1034
24.8 <math.h> . . . 1035
24.9 <mqueue.h> . . . 1036
24.10 <netdb.h> . . . 1037
24.11 <pthread.h> . . . 1038
24.12 <sched.h> . . . 1040
24.13 <semaphore.h> . . . 1041
24.14 <signal.h> . . . 1042
24.15 <stddef.h> . . . 1043
24.16 <stdint.h> . . . 1044
24.17 <stdio.h> . . . 1045
24.18 <stdlib.h> . . . 1046
24.19 <string.h> . . . 1047
24.20 <sys/mman.h> . . . 1048

24.21 <sys/select.h> . . . 1049
24.22 <sys/socket.h> . . . 1050
24.23 <sys/stat.h> . . . 1051
24.24 <time.h> . . . 1052
24.25 <unistd.h> . . . 1053

**25 FACE Technical Standard, Edition 3.1 Safety Extended 1055**
25.1 Summary . . . 1056
25.2 <arpa/inet.h> . . . 1057
25.3 <ctype.h> . . . 1058
25.4 <devctl.h> . . . 1059
25.5 <dirent.h> . . . 1060
25.6 <errno.h> . . . 1061
25.7 <fcntl.h> . . . 1062
25.8 <math.h> . . . 1063
25.9 <mqueue.h> . . . 1064
25.10 <netdb.h> . . . 1065
25.11 <pthread.h> . . . 1066
25.12 <sched.h> . . . 1068
25.13 <semaphore.h> . . . 1069
25.14 <setjmp.h> . . . 1070
25.15 <signal.h> . . . 1071
25.16 <stdarg.h> . . . 1072
25.17 <stddef.h> . . . 1073
25.18 <stdint.h> . . . 1074
25.19 <stdio.h> . . . 1075
25.20 <stdlib.h> . . . 1076
25.21 <string.h> . . . 1077
25.22 <sys/mman.h> . . . 1078
25.23 <sys/select.h> . . . 1079
25.24 <sys/socket.h> . . . 1080
25.25 <sys/stat.h> . . . 1081
25.26 <sys/utsname.h> . . . 1082
25.27 <time.h> . . . 1083
25.28 <unistd.h> . . . 1084

**26 FACE Technical Standard, Edition 3.1 General Purpose 1085**
26.1 Summary . . . 1086
26.2 <aio.h> . . . 1087
26.3 <arpa/inet.h> . . . 1088
26.4 <complex.h> . . . 1089
26.5 <ctype.h> . . . 1091
26.6 <devctl.h> . . . 1092
26.7 <dirent.h> . . . 1093
26.8 <errno.h> . . . 1094
26.9 <fcntl.h> . . . 1095
26.10 <fenv.h> . . . 1096
26.11 <inttypes.h> . . . 1097
26.12 <locale.h> . . . 1098
26.13 <math.h> . . . 1099
26.14 <mqueue.h> . . . 1105
26.15 <net/if.h> . . . 1106

26.16 <netdb.h> . . . 1107
26.17 <pthread.h> . . . 1108
26.18 <sched.h> . . . 1111
26.19 <semaphore.h> . . . 1112
26.20 <setjmp.h> . . . 1113
26.21 <signal.h> . . . 1114
26.22 <stdarg.h> . . . 1115
26.23 <stddef.h> . . . 1116
26.24 <stdint.h> . . . 1117
26.25 <stdio.h> . . . 1118
26.26 <stdlib.h> . . . 1120
26.27 <string.h> . . . 1121
26.28 <sys/mman.h> . . . 1122
26.29 <sys/select.h> . . . 1123
26.30 <sys/socket.h> . . . 1124
26.31 <sys/stat.h> . . . 1125
26.32 <sys/utsname.h> . . . 1126
26.33 <time.h> . . . 1127
26.34 <unistd.h> . . . 1128

**27 FACE Technical Standard, Edition 3.2 Security 1131**
27.1 Summary . . . 1132
27.2 <arpa/inet.h> . . . 1133
27.3 <ctype.h> . . . 1134
27.4 <devctl.h> . . . 1135
27.5 <errno.h> . . . 1136
27.6 <math.h> . . . 1137
27.7 <netdb.h> . . . 1138
27.8 <pthread.h> . . . 1139
27.9 <sched.h> . . . 1141
27.10 <semaphore.h> . . . 1142
27.11 <signal.h> . . . 1143
27.12 <stddef.h> . . . 1144
27.13 <stdint.h> . . . 1145
27.14 <stdlib.h> . . . 1146
27.15 <string.h> . . . 1147
27.16 <sys/mman.h> . . . 1148
27.17 <sys/socket.h> . . . 1149
27.18 <sys/stat.h> . . . 1150
27.19 <time.h> . . . 1151
27.20 <unistd.h> . . . 1152

**28 FACE Technical Standard, Edition 3.2 Safety Base 1153**
28.1 Summary . . . 1154
28.2 <arpa/inet.h> . . . 1155
28.3 <ctype.h> . . . 1156
28.4 <devctl.h> . . . 1157
28.5 <dirent.h> . . . 1158
28.6 <errno.h> . . . 1159
28.7 <fcntl.h> . . . 1160
28.8 <math.h> . . . 1161
28.9 <mqueue.h> . . . 1162

28.10 <netdb.h> . . . 1163
28.11 <pthread.h> . . . 1164
28.12 <sched.h> . . . 1166
28.13 <semaphore.h> . . . 1167
28.14 <signal.h> . . . 1168
28.15 <stddef.h> . . . 1169
28.16 <stdint.h> . . . 1170
28.17 <stdio.h> . . . 1171
28.18 <stdlib.h> . . . 1172
28.19 <string.h> . . . 1173
28.20 <sys/mman.h> . . . 1174
28.21 <sys/select.h> . . . 1175
28.22 <sys/socket.h> . . . 1176
28.23 <sys/stat.h> . . . 1177
28.24 <time.h> . . . 1178
28.25 <unistd.h> . . . 1179

**29 FACE Technical Standard, Edition 3.2 Safety Extended 1181**
29.1 Summary . . . 1182
29.2 <arpa/inet.h> . . . 1183
29.3 <ctype.h> . . . 1184
29.4 <devctl.h> . . . 1185
29.5 <dirent.h> . . . 1186
29.6 <errno.h> . . . 1187
29.7 <fcntl.h> . . . 1188
29.8 <math.h> . . . 1189
29.9 <mqueue.h> . . . 1190
29.10 <netdb.h> . . . 1191
29.11 <pthread.h> . . . 1192
29.12 <sched.h> . . . 1194
29.13 <semaphore.h> . . . 1195
29.14 <setjmp.h> . . . 1196
29.15 <signal.h> . . . 1197
29.16 <stdarg.h> . . . 1198
29.17 <stddef.h> . . . 1199
29.18 <stdint.h> . . . 1200
29.19 <stdio.h> . . . 1201
29.20 <stdlib.h> . . . 1202
29.21 <string.h> . . . 1203
29.22 <sys/mman.h> . . . 1204
29.23 <sys/select.h> . . . 1205
29.24 <sys/socket.h> . . . 1206
29.25 <sys/stat.h> . . . 1207
29.26 <sys/utsname.h> . . . 1208
29.27 <time.h> . . . 1209
29.28 <unistd.h> . . . 1210

**30 FACE Technical Standard, Edition 3.2 General Purpose 1211**
30.1 Summary . . . 1212
30.2 <aio.h> . . . 1213
30.3 <arpa/inet.h> . . . 1214
30.4 <complex.h> . . . 1215

30.5 <ctype.h> . . . 1217
30.6 <devctl.h> . . . 1218
30.7 <dirent.h> . . . 1219
30.8 <errno.h> . . . 1220
30.9 <fcntl.h> . . . 1221
30.10 <fenv.h> . . . 1222
30.11 <inttypes.h> . . . 1223
30.12 <locale.h> . . . 1224
30.13 <math.h> . . . 1225
30.14 <mqueue.h> . . . 1231
30.15 <net/if.h> . . . 1232
30.16 <netdb.h> . . . 1233
30.17 <pthread.h> . . . 1234
30.18 <sched.h> . . . 1237
30.19 <semaphore.h> . . . 1238
30.20 <setjmp.h> . . . 1239
30.21 <signal.h> . . . 1240
30.22 <stdarg.h> . . . 1241
30.23 <stddef.h> . . . 1242
30.24 <stdint.h> . . . 1243
30.25 <stdio.h> . . . 1244
30.26 <stdlib.h> . . . 1246
30.27 <string.h> . . . 1247
30.28 <sys/mman.h> . . . 1248
30.29 <sys/select.h> . . . 1249
30.30 <sys/socket.h> . . . 1250
30.31 <sys/stat.h> . . . 1251
30.32 <sys/utsname.h> . . . 1252
30.33 <time.h> . . . 1253
30.34 <unistd.h> . . . 1254

**31 Software Communications Architecture 2.2.2 AEP 1257**
31.1 Summary . . . 1258
31.2 <ctype.h> . . . 1259
31.3 <dirent.h> . . . 1260
31.4 <fcntl.h> . . . 1261
31.5 <locale.h> . . . 1262
31.6 <math.h> . . . 1263
31.7 <pthread.h> . . . 1264
31.8 <semaphore.h> . . . 1267
31.9 <setjmp.h> . . . 1268
31.10 <signal.h> . . . 1269
31.11 <stdio.h> . . . 1270
31.12 <stdlib.h> . . . 1272
31.13 <string.h> . . . 1273
31.14 <sys/stat.h> . . . 1274
31.15 <time.h> . . . 1275
31.16 <unistd.h> . . . 1276
31.17 <utime.h> . . . 1277

**32 Software Communications Architecture 4.1 Ultra Lightweight Application Environment Profile 1279**

32.1 Summary . . . 1280
32.2 <math.h> . . . 1281
32.3 <mqueue.h> . . . 1282
32.4 <pthread.h> . . . 1283
32.5 <semaphore.h> . . . 1284
32.6 <time.h> . . . 1285

**33 Software Communications Architecture 4.1 Lightweight Application Environment Profile 1287**
33.1 Summary . . . 1288
33.2 <ctype.h> . . . 1289
33.3 <fcntl.h> . . . 1290
33.4 <math.h> . . . 1291
33.5 <mqueue.h> . . . 1292
33.6 <pthread.h> . . . 1293
33.7 <semaphore.h> . . . 1294
33.8 <stdio.h> . . . 1295
33.9 <stdlib.h> . . . 1296
33.10 <string.h> . . . 1297
33.11 <time.h> . . . 1298
33.12 <unistd.h> . . . 1299

**34 Software Communications Architecture 4.1 [Full] Appliation Environment Profile 1301**
34.1 Summary . . . 1302
34.2 <arpa/inet.h> . . . 1303
34.3 <ctype.h> . . . 1304
34.4 <dirent.h> . . . 1305
34.5 <errno.h> . . . 1306
34.6 <fcntl.h> . . . 1307
34.7 <math.h> . . . 1308
34.8 <mqueue.h> . . . 1309
34.9 <pthread.h> . . . 1310
34.10 <semaphore.h> . . . 1312
34.11 <signal.h> . . . 1313
34.12 <stdarg.h> . . . 1314
34.13 <stdio.h> . . . 1315
34.14 <stdlib.h> . . . 1317
34.15 <string.h> . . . 1318
34.16 <sys/select.h> . . . 1319
34.17 <sys/socket.h> . . . 1320
34.18 <sys/stat.h> . . . 1321
34.19 <time.h> . . . 1322
34.20 <unistd.h> . . . 1323

**35 Glossary 1325**

**Index 1327**

**Copyrights and License**

© 2017 Chris Johns
© 1988, 2018 On-Line Applications Research Corporation (OAR)

This document is available under the Creative Commons Attribution-ShareAlike 4.0 International Public License.

The authors have used their best efforts in preparing this material. These efforts include the development, research, and testing of the theories and programs to determine their effectiveness. No warranty of any kind, expressed or implied, with regard to the software or the material contained in this document is provided. No liability arising out of the application or use of any product described in this document is assumed. The authors reserve the right to revise this material and to make changes from time to time in the content hereof without obligation to notify anyone of such revision or changes.

The RTEMS Project is hosted at https://www.rtems.org. Any inquiries concerning RTEMS, its related support components, or its documentation should be directed to the RTEMS Project community.

**RTEMS Online Resources**

| | |
|---|---|
| Home | https://www.rtems.org |
| Documentation | https://docs.rtems.org |
| Mailing Lists | https://lists.rtems.org |
| Bug Reporting | https://gitlab.rtems.org |
| Git Repositories | https://gitlab.rtems.org |
| Developers | https://gitlab.rtems.org |

CHAPTER

**ONE**

# PREFACE

RTEMS supports a variety of POSIX and BSD features including some POSIX methods that are now deemed obsolete and some methods for compatibility with GNU/Linux and FreeBSD. There are multiple POSIX standard versions as well as multiple efforts to tailor (e.g. profile) POSIX for embedded environments. They range in size from less than 200 required capabilities to the full POSIX standard which has over 1200 required capabilities. This document reports on the alignment of RTEMS with various standard versions and defined profiles.

RTEMS supports a number of POSIX process, user, and group oriented routines in what is referred to as a "SUSP" (Single-User, Single Process) manner. RTEMS supports a single process, multithreaded POSIX environment. In a pure world, there would be no reason to even include routines like `getpid()` when there can only be one process. But providing routines like `getpid()` and making them work in a sensible fashion for an embedded environment while not returning `ENOSYS` (for not implemented) makes it significantly easier to port code from a UNIX environment without modifying it.

In general, adding missing methods is always an open project for a volunteer. If considering addressing missing methods, please discuss this on mailing list. Some are properly implemented in the Newlib C Standard Library used by RTEMS. Others may require target architecture specific implementations. Still others may be impossible to implement without multiple processes or can only be implemented in a restricted fashion.

Missing methods required by the C99 standard or FACE Technical Standard Edition 3.0 General Purpose Profile are good candidates to add. Proposals to add missing methods from the C11 standard should be reviewed by RTEMS core developers to ensure the effort is well spent. There are rumors that some optional methods that are not being widely implemented will be removed in a future versino of the C Programming Language standard.

The next chapter in this document describes each of the standards with which the RTEMS alignment is tracked. Each subsequent chapter in this document presents the alignment of RTEMS with a specific standard version or defined profile. Each section with a chapter details the alignment of a specific header file relative to the chapter's standard or profile. The implementation status of the items required by the standard are listed.

CHAPTER

**TWO**

# STANDARDS

This chapter describes each of the standards which RTEMS tracks API alignment with. As a general rules, these standards are related to the POSIX or C programming language standards. Many are the result of domain specific efforts to define subsets or profiles or the full POSIX standard which are suitable for a specific domain. Each API set is considered a "profile" against which the full capability set of RTEMS is evaluated.

The RTEMS Complete Profile is the complete set of POSIX, BSD, and C programming language functions supported by RTEMS. This profile is independent of any standard and represents a union of multiple standards. For example, RTEMS supports BSD derived functions that are not in POSIX.

The IEEE Standard 1003.1 is the POSIX standard which is maintained by The Open Group. Specifically, IEEE Standard 1003.1-2003 is the 2003 edition of the POSIX standard which is referred to by The Open Group as Issue 6. IEEE Standard 1003.1-2008 is the 2003 Edition of the standard with two Technical Corrigenda applied. It does not have an issue number associated with it. IEEE Standard 1003.1-2017 is also known as Issue 7. Each edition of the POSIX standard tends to add some functions, deprecate some functions, and obsolete (e.g. remove) other functions.

API differences between Issue 5 and Issue 6 are documented at https://pubs.opengroup.org/onlinepubs/009695399/xrat/xsh_chap01.html. There is not a summary for the changes between Issue 6 as published and what was released as 1003.1-2008. However, there is a summary of API changes from Issue 6 to Issue 7 (POSIX 1003.1-2017) at https://pubs.opengroup.org/onlinepubs/9699919799/xrat/V4_xsh_chap01.html.

Issue 8 was published in June 2024. The HTML version is not yet available on the web. It did include a list of newly added functions and deprecated functions.

PSE51 through PSE54 are Open Group defined profiles of the 2003 edition of the POSIX standard. These profiles are:

- Profile 54 - Multipurpose
  - 1003.1-2003 Base Multi-process, Threads and File System
- Profile 53 - Dedicated
  - Multi-process, Threads and File System
- Profile 52 - Controller
  - Single Process, Threads, and File System
- Profile 51 - Minimal

  - Single Process, Threads, with No File System

The C99 Programming Language standard defines the Standard C Library. This library is largely included by reference in the POSIX standard.

The C11 Programming Language standard defines also defines an updated version of the Standard C Library. It deletes a few functions from the C99 version but adds many functions. A large portion of these functions are optional and not commonly implemented.

Similarly, the C17 Programming Language standard defines an updated version of the Standard C Library.

The Open Group FACE Consortium (https://www.opengroup.org/face) has defined four POSIX profiles targetting the avionics application domain. The FACE Technical Standard has been through multiple revisions and the POSIX API profiles are identical in Editions 1.0, 2.0, 2.1, and 2.1.1. In these editions, the profiles and the approximate number of APIs in each are as follows:

- Security - ~165 APIs, single process, no FILE *
- Safety Basic - ~250 APIs, single process, some FILE *
- Safety Extended - ~335 APIs, multi-process, more FILE *
- General Purpose - ~825 APIs, multi-process, much more

FACE Technical Standard, Edition 3.0 adds the requirement for an operating system to support `clock_nanosleep()` in all profiles and defines one additional subcommand for the `posix_devctl()` functions.

FACE Technical Standard, Edition 3.1 has a number of minor changes to the profiles. Most of these were to improve alignment with the Software Communications Architecture (SCA) profiles. Additionally, some inconsistencies in the profiles were noticed and addressed while doing the alignment review.

FACE Technical Standard, Edition 3.2 has a few minor changes to the profiles.

RTEMS provides all of the functions required by the FACE Safety BASE profile and all of the functions in the Safety Extended profile which do not require multiple processes. Similarly, RTEMS provides nearly all of the functions in the General Purpose profile which do not require multiple processes. Support for the functions defined in fenv.h is processor architecture dependent.

The Software Communications Architecture (SCA) specification targets the requirements for software-defined radios. This specification was originally developed in support of the Joint Tactical Radio System (JTRS) program in conjunction with the Object Management Group (OMG). This standard is now maintained by the Wireless Innovation Forum with support from the U.S. Navy Joint Tactical Network Center (JTNC). Some URLs of interest:

- SCA at Wireless Innovation Forum - http://www.wirelessinnovation.org/sca-based-standards-library
- JTRS - https://en.wikipedia.org/wiki/Joint_Tactical_Radio_System
- JTNC - http://www.public.navy.mil/jtnc/Pages/home.aspx

The SCA standard is hosted at the Wireless Innovation Forum with JTNC hosting supplemental information.

RTEMS includes all functions required by the SCA POSIX profiles.

CHAPTER

**THREE**

# RTEMS COMPLETE PROFILE

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 3.1 Summary

The follow table summarizes RTEMS supported methods for all tracked standards:

| | |
|---|---|
| Supported | 1063 |
| ENOSYS | 18 |
| Not supported | 192 |

## 3.2 <aio.h>

The following methods and variables in <aio.h> are supported:

- aio_cancel()
- aio_error()
- aio_fsync()
- aio_read()
- aio_return()
- aio_write()
- lio_listio()

The following methods in <aio.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- aio_suspend()

## 3.3 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_addr()
- inet_ntoa()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 3.4 <assert.h>

The following methods and variables in <assert.h> are supported:

- assert()

## 3.5 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 3.6 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- _tolower()
- _toupper()
- isalnum()
- isalnum_l()
- isalpha()
- isalpha_l()
- isascii()
- isblank()
- isblank_l()
- iscntrl()
- iscntrl_l()
- isdigit()
- isdigit_l()
- isgraph()
- isgraph_l()
- islower()
- islower_l()
- isprint()
- isprint_l()
- ispunct()
- ispunct_l()
- isspace()
- isspace_l()
- isupper()
- isupper_l()
- isxdigit()
- isxdigit_l()
- toascii()
- tolower()
- tolower_l()
- toupper()
- toupper_l()

## 3.7 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 3.8 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- alphasort()
- closedir()
- fdopendir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()
- scandir()
- seekdir()
- telldir()

The following methods and variables in <dirent.h> are not supported:

- dirfd()

## 3.9 <dlfcn.h>

The following methods and variables in <dlfcn.h> are supported:

- dlclose()
- dlerror()
- dlopen()
- dlsym()

## 3.10 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 3.11 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

The following methods and variables in <fcntl.h> are not supported:

- openat()
- posix_fadvise()
- posix_fallocate()
- posix_openpt()

## 3.12 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 3.13 <fmtmsg.h>

The following methods and variables in <fmtmsg.h> are not supported:

- fmtmsg()

## 3.14 <fnmatch.h>

The following methods and variables in <fnmatch.h> are supported:

- fnmatch()

## 3.15 <ftw.h>

The following methods and variables in <ftw.h> are supported:

- ftw()
- nftw()

## 3.16 <glob.h>

The following methods and variables in <glob.h> are supported:

- glob()
- globfree()

## 3.17 <grp.h>

The following methods and variables in <grp.h> are supported:

- endgrent()
- getgrent()
- getgrgid()
- getgrgid_r()
- getgrnam()
- getgrnam_r()
- setgrent()

## 3.18 <iconv.h>

The following methods and variables in <iconv.h> are supported:

- iconv()
- iconv_close()
- iconv_open()

## 3.19 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()
- wcstoimax()
- wcstoumax()

## 3.20 <langinfo.h>

The following methods and variables in <langinfo.h> are supported:

- nl_langinfo()
- nl_langinfo_l()

## 3.21 <libgen.h>

The following methods and variables in <libgen.h> are supported:

- basename()
- dirname()

## 3.22 <libintl.h>

The following methods and variables in <libintl.h> are supported:

- textdomain()

## 3.23 <locale.h>

The following methods and variables in <locale.h> are supported:

- duplocale()
- freelocale()
- localeconv()
- newlocale()
- setlocale()
- uselocale()

## 3.24 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalb()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()

- sqrt()
- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- j0()
- j1()
- jn()
- signbit()
- signgam
- y0()
- y1()
- yn()

## 3.25 <monetary.h>

The following methods and variables in <monetary.h> are not supported:

- strfmon()
- strfmon_l()

## 3.26 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 3.27 <ndbm.h>

The following methods and variables in <ndbm.h> are supported:

- dbm_clearerr()
- dbm_close()
- dbm_delete()
- dbm_error()
- dbm_fetch()
- dbm_firstkey()
- dbm_nextkey()
- dbm_open()
- dbm_store()

## 3.28 <net/if.h>

The following methods and variables in <net/if.h> are supported:

- if_freenameindex()
- if_indextoname()
- if_nameindex()
- if_nametoindex()

## 3.29 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- endhostent()
- endnetent()
- endprotoent()
- endservent()
- freeaddrinfo()
- gai_strerror()
- getaddrinfo()
- gethostbyaddr()
- gethostbyname()
- gethostent()
- getnameinfo()
- getnetbyaddr()
- getnetbyname()
- getnetent()
- getprotobyname()
- getprotobynumber()
- getprotoent()
- getservbyname()
- getservbyport()
- getservent()
- h_errno
- sethostent()
- setnetent()
- setprotoent()
- setservent()

## 3.30 <nl_types.h>

The following methods and variables in <nl_types.h> are not supported:

- catclose()
- catgets()
- catopen()

## 3.31 <poll.h>

The following methods and variables in <poll.h> are supported:

- poll()

## 3.32 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstackaddr()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstackaddr()
- pthread_attr_setstacksize()
- pthread_barrier_destroy()
- pthread_barrier_init()
- pthread_barrier_wait()
- pthread_barrierattr_destroy()
- pthread_barrierattr_getpshared()
- pthread_barrierattr_init()
- pthread_barrierattr_setpshared()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()

- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_getpshared()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_condattr_setpshared()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getconcurrency()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_getpshared()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()

- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_mutexattr_setpshared()
- pthread_mutexattr_settype()
- pthread_once()
- pthread_rwlock_destroy()
- pthread_rwlock_init()
- pthread_rwlock_rdlock()
- pthread_rwlock_timedrdlock()
- pthread_rwlock_timedwrlock()
- pthread_rwlock_tryrdlock()
- pthread_rwlock_trywrlock()
- pthread_rwlock_unlock()
- pthread_rwlock_wrlock()
- pthread_rwlockattr_destroy()
- pthread_rwlockattr_getpshared()
- pthread_rwlockattr_init()
- pthread_rwlockattr_setpshared()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setconcurrency()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_spin_destroy()
- pthread_spin_init()
- pthread_spin_lock()
- pthread_spin_trylock()
- pthread_spin_unlock()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

The following methods and variables in <pthread.h> are not supported:

- pthread_mutex_consistent()
- pthread_mutexattr_getrobust()
- pthread_mutexattr_setrobust()

## 3.33 <pwd.h>

The following methods and variables in <pwd.h> are supported:

- endpwent()
- getpwent()
- getpwnam()
- getpwnam_r()
- getpwuid()
- getpwuid_r()
- setpwent()

## 3.34 <regex.h>

The following methods and variables in <regex.h> are supported:

- regcomp()
- regerror()
- regexec()
- regfree()

## 3.35 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

The following methods in <sched.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- sched_getparam()
- sched_getscheduler()
- sched_setparam()
- sched_setscheduler()

## 3.36 <search.h>

The following methods and variables in <search.h> are supported:

- hcreate()
- hdestroy()
- hsearch()
- tdelete()
- tfind()
- tsearch()
- twalk()

The following methods and variables in <search.h> are not supported:

- insque()
- lfind()
- lsearch()
- remque()

## 3.37 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 3.38 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()
- siglongjmp()
- sigsetjmp()

The following methods and variables in <setjmp.h> are not supported:

- _longjmp()
- _setjmp()

## 3.39 <signal.h>

The following methods and variables in <signal.h> are supported:

- bsd_signal()
- kill()
- psignal()
- pthread_kill()
- pthread_sigmask()
- raise()
- sig2str()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

The following methods and variables in <signal.h> are not supported:

- killpg()
- psiginfo()
- sigaltstack()
- sighold()
- sigignore()
- siginterrupt()
- sigpause()
- sigrelse()
- sigset()

## 3.40 <spawn.h>

The following methods and variables in <spawn.h> are not supported:

- posix_spawn()
- posix_spawn_file_actions_addclose()
- posix_spawn_file_actions_adddup2()
- posix_spawn_file_actions_addopen()
- posix_spawn_file_actions_destroy()
- posix_spawn_file_actions_init()
- posix_spawnattr_destroy()
- posix_spawnattr_getflags()
- posix_spawnattr_getpgroup()
- posix_spawnattr_getschedparam()
- posix_spawnattr_getschedpolicy()
- posix_spawnattr_getsigdefault()
- posix_spawnattr_getsigmask()
- posix_spawnattr_init()
- posix_spawnattr_setflags()
- posix_spawnattr_setpgroup()
- posix_spawnattr_setschedparam()
- posix_spawnattr_setschedpolicy()
- posix_spawnattr_setsigdefault()
- posix_spawnattr_setsigmask()
- posix_spawnp()

## 3.41 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 3.42 <stdatomic.h>

The following methods and variables in <stdatomic.h> are supported:

- ATOMIC_VAR_INIT()
- atomic_compare_exchange_strong()
- atomic_compare_exchange_strong_explicit()
- atomic_compare_exchange_weak()
- atomic_compare_exchange_weak_explicit()
- atomic_exchange()
- atomic_exchange_explicit()
- atomic_fetch_key()
- atomic_fetch_key_explicit()
- atomic_flag_clear()
- atomic_flag_clear_explicit()
- atomic_flag_test_and_set()
- atomic_flag_test_and_set_explicit()
- atomic_init()
- atomic_is_lock_free()
- atomic_load()
- atomic_load_explicit()
- atomic_signal_fence()
- atomic_store()
- atomic_store_explicit()
- atomic_thread_fence()

## 3.43 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 3.44 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 3.45 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- ctermid()
- dprintf()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fileno()
- flockfile()
- fmemopen()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- fsetpos()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- getc()
- getc_unlocked()
- getchar()

- getchar_unlocked()
- gets()
- open_memstream()
- perror()
- printf()
- putc()
- putc_unlocked()
- putchar()
- putchar_unlocked()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setbuf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tempnam()
- tmpfile()
- tmpnam()
- ungetc()
- vdprintf()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

The following methods and variables in <stdio.h> are not supported:

- getdelim()
- getline()
- pclose()
- popen()
- renameat()

## 3.46 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- _Exit()
- a64l()
- abort()
- abs()
- aligned_alloc()
- atexit()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- drand48()
- ecvt()
- erand48()
- exit()
- fcvt()
- free()
- gcvt()
- getenv()
- getsubopt()
- jrand48()
- l64a()
- labs()
- lcong48()
- ldiv()
- llabs()
- lldiv()
- lrand48()
- malloc()
- mblen()

- mbstowcs()
- mbtowc()
- mkdtemp()
- mkstemp()
- mktemp()
- mktime()
- mrand48()
- nrand48()
- posix_memalign()
- putenv()
- qsort()
- qsort_r()
- quick_exit()
- rand()
- rand_r()
- random()
- realloc()
- reallocarray()
- realpath()
- seed48()
- setenv()
- srand()
- srand48()
- srandom()
- strtod()
- strtof()
- strtol()
- strtold()
- strtoll()
- strtoul()
- strtoull()
- unsetenv()
- wcstombs()
- wctomb()

The following methods in <stdlib.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- system()

The following methods and variables in <stdlib.h> are not supported:

- grantpt()
- initstate()
- ptsname()
- setkey()
- setstate()
- unlockpt()

## 3.47 <string.h>

The following methods and variables in <string.h> are supported:

- memccpy()
- memchr()
- memcmp()
- memcpy()
- memmem()
- memmove()
- memset()
- stpcpy()
- stpncpy()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcoll_l()
- strcpy()
- strcspn()
- strdup()
- strerror()
- strerror_l()
- strerror_r()
- strlcat()
- strlcpy()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strndup()
- strnlen()
- strpbrk()
- strrchr()
- strsignal()
- strspn()

- strstr()
- strtok()
- strtok_r()
- strxfrm()
- strxfrm_l()

## 3.48 <strings.h>

The following methods and variables in <strings.h> are supported:

- bcmp()
- bcopy()
- bzero()
- ffs()
- ftime()
- index()
- rindex()
- strcasecmp()
- strcasecmp_l()
- strncasecmp()
- strncasecmp_l()

## 3.49 <stropts.h>

The following methods and variables in <stropts.h> are supported:

- ioctl()

The following methods and variables in <stropts.h> are not supported:

- fattach()
- fdetach()
- getmsg()
- getpmsg()
- isastream()
- putmsg()
- putpmsg()

## 3.50 <sys/ipc.h>

The following methods and variables in <sys/ipc.h> are not supported:

- ftok()

## 3.51 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlock()
- mlockall()
- mmap()
- mprotect()
- msync()
- munlock()
- munlockall()
- munmap()
- posix_madvise()
- shm_open()
- shm_unlink()

The following methods and variables in <sys/mman.h> are not supported:

- posix_mem_offset()
- posix_typed_mem_get_info()
- posix_typed_mem_open()

## 3.52 <sys/msg.h>

The following methods and variables in <sys/msg.h> are not supported:

- msgctl()
- msgget()
- msgrcv()
- msgsnd()

## 3.53 <sys/resource.h>

The following methods and variables in <sys/resource.h> are supported:

- getrusage()

The following methods and variables in <sys/resource.h> are not supported:

- getpriority()
- getrlimit()
- setpriority()
- setrlimit()

## 3.54 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

The following methods and variables in <sys/select.h> are not supported:

- pselect()

## 3.55 <sys/sem.h>

The following methods and variables in <sys/sem.h> are not supported:

- semctl()
- semget()
- semop()

## 3.56 <sys/shm.h>

The following methods and variables in <sys/shm.h> are not supported:

- shmat()
- shmctl()
- shmdt()
- shmget()

## 3.57 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- recvmsg()
- send()
- sendmsg()
- sendto()
- setsockopt()
- shutdown()
- socket()
- socketpair()

The following methods and variables in <sys/socket.h> are not supported:

- sockatmark()

## 3.58 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fchmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- mknod()
- stat()
- umask()

The following methods and variables in <sys/stat.h> are not supported:

- fchmodat()
- fstatat()
- futimens()
- mkdirat()
- mkfifoat()
- mknodat()
- utimensat()

## 3.59 <sys/statvfs.h>

The following methods and variables in <sys/statvfs.h> are supported:

- statvfs()

The following methods and variables in <sys/statvfs.h> are not supported:

- fstatvfs()

## 3.60 <sys/time.h>

The following methods and variables in <sys/time.h> are supported:

- gettimeofday()
- times()
- utimes()

The following methods in <sys/time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- getitimer()
- setitimer()

## 3.61 <sys/uio.h>

The following methods and variables in <sys/uio.h> are supported:

- readv()
- writev()

## 3.62 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 3.63 <sys/wait.h>

The following methods and variables in <sys/wait.h> are supported:

- wait()
- waitpid()

The following methods and variables in <sys/wait.h> are not supported:

- waitid()

## 3.64 <syslog.h>

The following methods and variables in <syslog.h> are not supported:

- closelog()
- openlog()
- setlogmask()
- syslog()

## 3.65 <termios.h>

The following methods and variables in <termios.h> are supported:

- cfgetispeed()
- cfgetospeed()
- cfsetispeed()
- cfsetospeed()
- tcdrain()
- tcflow()
- tcflush()
- tcgetattr()
- tcsendbreak()
- tcsetattr()

The following methods and variables in <termios.h> are not supported:

- tcgetsid()

## 3.66 <threads.h>

The following methods and variables in <threads.h> are supported:

- call_once()
- cnd_broadcast()
- cnd_destroy()
- cnd_init()
- cnd_signal()
- cnd_timedwait()
- cnd_wait()
- mtx_destroy()
- mtx_init()
- mtx_lock()
- mtx_timedlock()
- mtx_trylock()
- mtx_unlock()
- thrd_create()
- thrd_current()
- thrd_detach()
- thrd_equal()
- thrd_exit()
- thrd_join()
- thrd_sleep()
- thrd_yield()
- tss_create()
- tss_delete()
- tss_get()
- tss_set()

## 3.67 <time.h>

The following methods and variables in <time.h> are supported:

- asctime()
- asctime_r()
- clock()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime()
- ctime_r()
- difftime()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- strftime_l()
- strptime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- timezone
- tzname
- tzset()

The following methods in <time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- clock_getcpuclockid()

The following methods and variables in <time.h> are not supported:

- daylight

- getdate()
- getdate_err

## 3.68 <trace.h>

The following methods and variables in <trace.h> are not supported:

- posix_trace_attr_destroy()
- posix_trace_attr_getclockres()
- posix_trace_attr_getcreatetime()
- posix_trace_attr_getgenversion()
- posix_trace_attr_getinherited()
- posix_trace_attr_getlogfullpolicy()
- posix_trace_attr_getlogsize()
- posix_trace_attr_getmaxdatasize()
- posix_trace_attr_getmaxsystemeventsize()
- posix_trace_attr_getmaxusereventsize()
- posix_trace_attr_getname()
- posix_trace_attr_getstreamfullpolicy()
- posix_trace_attr_getstreamsize()
- posix_trace_attr_init()
- posix_trace_attr_setinherited()
- posix_trace_attr_setlogfullpolicy()
- posix_trace_attr_setlogsize()
- posix_trace_attr_setmaxdatasize()
- posix_trace_attr_setname()
- posix_trace_attr_setstreamfullpolicy()
- posix_trace_attr_setstreamsize()
- posix_trace_clear()
- posix_trace_close()
- posix_trace_create()
- posix_trace_create_withlog()
- posix_trace_event()
- posix_trace_eventid_equal()
- posix_trace_eventid_get_name()
- posix_trace_eventid_open()
- posix_trace_eventset_add()
- posix_trace_eventset_del()
- posix_trace_eventset_empty()

- posix_trace_eventset_fill()
- posix_trace_eventset_ismember()
- posix_trace_eventtypelist_getnext_id()
- posix_trace_eventtypelist_rewind()
- posix_trace_flush()
- posix_trace_get_attr()
- posix_trace_get_filter()
- posix_trace_get_status()
- posix_trace_getnext_event()
- posix_trace_open()
- posix_trace_rewind()
- posix_trace_set_filter()
- posix_trace_shutdown()
- posix_trace_start()
- posix_trace_stop()
- posix_trace_timedgetnext_event()
- posix_trace_trid_eventid_open()
- posix_trace_trygetnext_event()

## 3.69 <ulimit.h>

The following methods and variables in <ulimit.h> are not supported:

- ulimit()

## 3.70 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- _exit()
- access()
- alarm()
- chdir()
- chown()
- close()
- dup()
- dup2()
- environ
- fchdir()
- fchown()
- fdatasync()
- fpathconf()
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getlogin()
- getlogin_r()
- getopt()
- getpgrp()
- getpid()
- getppid()
- getuid()
- isatty()
- lchown()
- link()
- lseek()

- optarg
- opterr
- optind
- optopt
- pathconf()
- pause()
- pipe()
- pread()
- pwrite()
- read()
- readlink()
- rmdir()
- setegid()
- seteuid()
- setgid()
- setpgid()
- setsid()
- setuid()
- sleep()
- swab()
- symlink()
- sync()
- sysconf()
- tcgetpgrp()
- tcsetpgrp()
- truncate()
- ttyname()
- ttyname_r()
- ualarm()
- unlink()
- usleep()
- write()

The following methods in <unistd.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- execl()

- execle()
- execlp()
- execv()
- execve()
- execvp()
- fork()

The following methods and variables in <unistd.h> are not supported:

- confstr()
- crypt()
- encrypt()
- faccessat()
- fchownat()
- fexecve()
- gethostid()
- getpgid()
- getsid()
- linkat()
- lockf()
- nice()
- readlinkat()
- setpgrp()
- setregid()
- setreuid()
- symlinkat()
- unlinkat()

## 3.71 <utime.h>

The following methods and variables in <utime.h> are supported:

- utime()

## 3.72 <utmpx.h>

The following methods and variables in <utmpx.h> are not supported:

- endutxent()
- getutxent()
- getutxid()
- getutxline()
- pututxline()
- setutxent()

## 3.73 <wchar.h>

The following methods and variables in <wchar.h> are supported:

- btowc()
- fgetwc()
- fgetws()
- fputwc()
- fputws()
- fwide()
- fwprintf()
- fwscanf()
- getwc()
- getwchar()
- mbrlen()
- mbrtowc()
- mbsinit()
- mbsnrtowcs()
- mbsrtowcs()
- open_wmemstream()
- putwc()
- putwchar()
- swprintf()
- swscanf()
- ungetwc()
- vfwprintf()
- vfwscanf()
- vswprintf()
- vswscanf()
- vwprintf()
- vwscanf()
- wcpcpy()
- wcpncpy()
- wcrtomb()
- wcscasecmp()
- wcscasecmp_l()

- wcscat()
- wcschr()
- wcscmp()
- wcscoll()
- wcscoll_l()
- wcscpy()
- wcscspn()
- wcsdup()
- wcsftime()
- wcslcat()
- wcslcpy()
- wcslen()
- wcsncasecmp()
- wcsncat()
- wcsncmp()
- wcsncpy()
- wcsnlen()
- wcsnrtombs()
- wcspbrk()
- wcsrchr()
- wcsrtombs()
- wcsspn()
- wcsstr()
- wcstod()
- wcstof()
- wcstok()
- wcstol()
- wcstold()
- wcstoll()
- wcstoul()
- wcstoull()
- wcswidth()
- wcsxfrm()
- wcsxfrm_l()

- wctob()
- wcwidth()
- wmemchr()
- wmemcmp()
- wmemcpy()
- wmemmove()
- wmemset()
- wprintf()
- wscanf()

The following methods and variables in <wchar.h> are not supported:

- wcsncasemcp_l()

## 3.74 <wctype.h>

The following methods and variables in <wctype.h> are supported:

- iswalnum()
- iswalnum_l()
- iswalpha()
- iswalpha_l()
- iswblank()
- iswblank_l()
- iswcntrl()
- iswcntrl_l()
- iswctype()
- iswctype_l()
- iswdigit()
- iswdigit_l()
- iswgraph()
- iswgraph_l()
- iswlower()
- iswlower_l()
- iswprint()
- iswprint_l()
- iswpunct()
- iswpunct_l()
- iswspace()
- iswspace_l()
- iswupper()
- iswupper_l()
- iswxdigit()
- iswxdigit_l()
- towctrans()
- towctrans_l()
- towlower()
- towlower_l()
- towupper()
- towupper_l()

- wctrans()
- wctrans_l()
- wctype()
- wctype_l()

## 3.75 <wordexp.h>

The following methods and variables in <wordexp.h> are not supported:

- wordexp()
- wordfree()

CHAPTER

**FOUR**

# POSIX-2024 (ISSUE 8)

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 4.1 Summary

The follow table summarizes alignment with the POSIX-2024 (Issue 8) standard:

| | |
|---|---|
| Supported | 1030 |
| ENOSYS | 16 |
| Not supported | 125 |

## 4.2 <aio.h>

The following methods and variables in <aio.h> are supported:

- aio_cancel()
- aio_error()
- aio_fsync()
- aio_read()
- aio_return()
- aio_write()
- lio_listio()

The following methods in <aio.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- aio_suspend()

## 4.3 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_addr()
- inet_ntoa()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 4.4 <assert.h>

The following methods and variables in <assert.h> are supported:

- assert()

## 4.5 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 4.6 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalnum_l()
- isalpha()
- isalpha_l()
- isblank()
- isblank_l()
- iscntrl()
- iscntrl_l()
- isdigit()
- isdigit_l()
- isgraph()
- isgraph_l()
- islower()
- islower_l()
- isprint()
- isprint_l()
- ispunct()
- ispunct_l()
- isspace()
- isspace_l()
- isupper()
- isupper_l()
- isxdigit()
- isxdigit_l()
- tolower()
- tolower_l()
- toupper()
- toupper_l()

## 4.7 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- alphasort()
- closedir()
- fdopendir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()
- scandir()
- seekdir()
- telldir()

The following methods and variables in <dirent.h> are not supported:

- dirfd()

## 4.8 <dlfcn.h>

The following methods and variables in <dlfcn.h> are supported:

- dlclose()
- dlerror()
- dlopen()
- dlsym()

## 4.9 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 4.10 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

The following methods and variables in <fcntl.h> are not supported:

- openat()
- posix_fadvise()
- posix_fallocate()
- posix_openpt()

## 4.11 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 4.12 <fmtmsg.h>

The following methods and variables in <fmtmsg.h> are not supported:

- fmtmsg()

## 4.13 <fnmatch.h>

The following methods and variables in <fnmatch.h> are supported:

- fnmatch()

## 4.14 <ftw.h>

The following methods and variables in <ftw.h> are supported:

- nftw()

## 4.15 <glob.h>

The following methods and variables in <glob.h> are supported:

- glob()
- globfree()

## 4.16 <grp.h>

The following methods and variables in <grp.h> are supported:

- endgrent()
- getgrent()
- getgrgid()
- getgrgid_r()
- getgrnam()
- getgrnam_r()
- setgrent()

## 4.17 <iconv.h>

The following methods and variables in <iconv.h> are supported:

- iconv()
- iconv_close()
- iconv_open()

## 4.18 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()
- wcstoimax()
- wcstoumax()

## 4.19 <langinfo.h>

The following methods and variables in <langinfo.h> are supported:

- nl_langinfo()
- nl_langinfo_l()

## 4.20 <libgen.h>

The following methods and variables in <libgen.h> are supported:

- basename()
- dirname()

## 4.21 <libintl.h>

The following methods and variables in <libintl.h> are supported:

- textdomain()

## 4.22 <locale.h>

The following methods and variables in <locale.h> are supported:

- duplocale()
- freelocale()
- localeconv()
- newlocale()
- setlocale()
- uselocale()

## 4.23 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()
- sqrt()

- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- j0()
- j1()
- jn()
- signbit()
- signgam
- y0()
- y1()
- yn()

## 4.24 <monetary.h>

The following methods and variables in <monetary.h> are not supported:

- strfmon()
- strfmon_l()

## 4.25 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 4.26 <ndbm.h>

The following methods and variables in <ndbm.h> are supported:

- dbm_clearerr()
- dbm_close()
- dbm_delete()
- dbm_error()
- dbm_fetch()
- dbm_firstkey()
- dbm_nextkey()
- dbm_open()
- dbm_store()

## 4.27 <net/if.h>

The following methods and variables in <net/if.h> are supported:

- if_freenameindex()
- if_indextoname()
- if_nameindex()
- if_nametoindex()

## 4.28 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- endhostent()
- endnetent()
- endprotoent()
- endservent()
- freeaddrinfo()
- gai_strerror()
- getaddrinfo()
- gethostent()
- getnameinfo()
- getnetbyaddr()
- getnetbyname()
- getnetent()
- getprotobyname()
- getprotobynumber()
- getprotoent()
- getservbyname()
- getservbyport()
- getservent()
- sethostent()
- setnetent()
- setprotoent()
- setservent()

## 4.29 <nl_types.h>

The following methods and variables in <nl_types.h> are not supported:

- catclose()
- catgets()
- catopen()

## 4.30 <poll.h>

The following methods and variables in <poll.h> are supported:

- poll()

## 4.31 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_barrier_destroy()
- pthread_barrier_init()
- pthread_barrier_wait()
- pthread_barrierattr_destroy()
- pthread_barrierattr_getpshared()
- pthread_barrierattr_init()
- pthread_barrierattr_setpshared()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()

- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_getpshared()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_condattr_setpshared()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_getpshared()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_mutexattr_setpshared()

- pthread_mutexattr_settype()
- pthread_once()
- pthread_rwlock_destroy()
- pthread_rwlock_init()
- pthread_rwlock_rdlock()
- pthread_rwlock_timedrdlock()
- pthread_rwlock_timedwrlock()
- pthread_rwlock_tryrdlock()
- pthread_rwlock_trywrlock()
- pthread_rwlock_unlock()
- pthread_rwlock_wrlock()
- pthread_rwlockattr_destroy()
- pthread_rwlockattr_getpshared()
- pthread_rwlockattr_init()
- pthread_rwlockattr_setpshared()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_spin_destroy()
- pthread_spin_init()
- pthread_spin_lock()
- pthread_spin_trylock()
- pthread_spin_unlock()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

The following methods and variables in <pthread.h> are not supported:

- pthread_mutex_consistent()
- pthread_mutexattr_getrobust()
- pthread_mutexattr_setrobust()

## 4.32 <pwd.h>

The following methods and variables in <pwd.h> are supported:

- endpwent()
- getpwent()
- getpwnam()
- getpwnam_r()
- getpwuid()
- getpwuid_r()
- setpwent()

## 4.33 <regex.h>

The following methods and variables in <regex.h> are supported:

- regcomp()
- regerror()
- regexec()
- regfree()

## 4.34 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

The following methods in <sched.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- sched_getparam()
- sched_getscheduler()
- sched_setparam()
- sched_setscheduler()

## 4.35 <search.h>

The following methods and variables in <search.h> are supported:

- hcreate()
- hdestroy()
- hsearch()
- tdelete()
- tfind()
- tsearch()
- twalk()

The following methods and variables in <search.h> are not supported:

- insque()
- lfind()
- lsearch()
- remque()

## 4.36 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 4.37 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()
- siglongjmp()
- sigsetjmp()

## 4.38 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- psignal()
- pthread_kill()
- pthread_sigmask()
- raise()
- sig2str()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

The following methods and variables in <signal.h> are not supported:

- killpg()
- psiginfo()
- sigaltstack()

## 4.39 <spawn.h>

The following methods and variables in <spawn.h> are not supported:

- posix_spawn()
- posix_spawn_file_actions_addclose()
- posix_spawn_file_actions_adddup2()
- posix_spawn_file_actions_addopen()
- posix_spawn_file_actions_destroy()
- posix_spawn_file_actions_init()
- posix_spawnattr_destroy()
- posix_spawnattr_getflags()
- posix_spawnattr_getpgroup()
- posix_spawnattr_getschedparam()
- posix_spawnattr_getschedpolicy()
- posix_spawnattr_getsigdefault()
- posix_spawnattr_getsigmask()
- posix_spawnattr_init()
- posix_spawnattr_setflags()
- posix_spawnattr_setpgroup()
- posix_spawnattr_setschedparam()
- posix_spawnattr_setschedpolicy()
- posix_spawnattr_setsigdefault()
- posix_spawnattr_setsigmask()
- posix_spawnp()

## 4.40 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 4.41 <stdatomic.h>

The following methods and variables in <stdatomic.h> are supported:

- ATOMIC_VAR_INIT()
- atomic_compare_exchange_strong()
- atomic_compare_exchange_strong_explicit()
- atomic_compare_exchange_weak()
- atomic_compare_exchange_weak_explicit()
- atomic_exchange()
- atomic_exchange_explicit()
- atomic_fetch_key()
- atomic_fetch_key_explicit()
- atomic_flag_clear()
- atomic_flag_clear_explicit()
- atomic_flag_test_and_set()
- atomic_flag_test_and_set_explicit()
- atomic_init()
- atomic_is_lock_free()
- atomic_load()
- atomic_load_explicit()
- atomic_signal_fence()
- atomic_store()
- atomic_store_explicit()
- atomic_thread_fence()

## 4.42 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 4.43 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 4.44 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- ctermid()
- dprintf()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fileno()
- flockfile()
- fmemopen()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- fsetpos()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- getc()
- getc_unlocked()
- getchar()

- getchar_unlocked()
- open_memstream()
- perror()
- printf()
- putc()
- putc_unlocked()
- putchar()
- putchar_unlocked()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setbuf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tmpfile()
- tmpnam()
- ungetc()
- vdprintf()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

The following methods and variables in <stdio.h> are not supported:

- getdelim()

- getline()
- pclose()
- popen()
- renameat()

## 4.45 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- _Exit()
- a64l()
- abort()
- abs()
- aligned_alloc()
- atexit()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- drand48()
- erand48()
- exit()
- free()
- getenv()
- getsubopt()
- jrand48()
- l64a()
- labs()
- lcong48()
- ldiv()
- llabs()
- lldiv()
- lrand48()
- malloc()
- mblen()
- mbstowcs()
- mbtowc()
- mkdtemp()

- mkstemp()
- mktime()
- mrand48()
- nrand48()
- posix_memalign()
- putenv()
- qsort()
- qsort_r()
- quick_exit()
- rand()
- random()
- realloc()
- reallocarray()
- realpath()
- seed48()
- setenv()
- srand()
- srand48()
- srandom()
- strtod()
- strtof()
- strtol()
- strtold()
- strtoll()
- strtoul()
- strtoull()
- unsetenv()
- wcstombs()
- wctomb()

The following methods in <stdlib.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- system()

The following methods and variables in <stdlib.h> are not supported:

- grantpt()
- initstate()

- ptsname()
- setkey()
- setstate()
- unlockpt()

## 4.46 <string.h>

The following methods and variables in <string.h> are supported:

- memccpy()
- memchr()
- memcmp()
- memcpy()
- memmem()
- memmove()
- memset()
- stpcpy()
- stpncpy()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcoll_l()
- strcpy()
- strcspn()
- strdup()
- strerror()
- strerror_l()
- strerror_r()
- strlcat()
- strlcpy()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strndup()
- strnlen()
- strpbrk()
- strrchr()
- strsignal()
- strspn()

- strstr()
- strtok()
- strtok_r()
- strxfrm()
- strxfrm_l()

## 4.47 <strings.h>

The following methods and variables in <strings.h> are supported:

- ffs()
- strcasecmp()
- strcasecmp_l()
- strncasecmp()
- strncasecmp_l()

## 4.48 <sys/ipc.h>

The following methods and variables in <sys/ipc.h> are not supported:

- ftok()

## 4.49 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlock()
- mlockall()
- mmap()
- mprotect()
- msync()
- munlock()
- munlockall()
- munmap()
- posix_madvise()
- shm_open()
- shm_unlink()

The following methods and variables in <sys/mman.h> are not supported:

- posix_mem_offset()
- posix_typed_mem_get_info()
- posix_typed_mem_open()

## 4.50 <sys/msg.h>

The following methods and variables in <sys/msg.h> are not supported:

- msgctl()
- msgget()
- msgrcv()
- msgsnd()

## 4.51 <sys/resource.h>

The following methods and variables in <sys/resource.h> are supported:

- getrusage()

The following methods and variables in <sys/resource.h> are not supported:

- getpriority()
- getrlimit()
- setpriority()
- setrlimit()

## 4.52 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

The following methods and variables in <sys/select.h> are not supported:

- pselect()

## 4.53 <sys/sem.h>

The following methods and variables in <sys/sem.h> are not supported:

- semctl()
- semget()
- semop()

## 4.54 <sys/shm.h>

The following methods and variables in <sys/shm.h> are not supported:

- shmat()
- shmctl()
- shmdt()
- shmget()

## 4.55 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- recvmsg()
- send()
- sendmsg()
- sendto()
- setsockopt()
- shutdown()
- socket()
- socketpair()

The following methods and variables in <sys/socket.h> are not supported:

- sockatmark()

## 4.56 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fchmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- mknod()
- stat()
- umask()

The following methods and variables in <sys/stat.h> are not supported:

- fchmodat()
- fstatat()
- futimens()
- mkdirat()
- mkfifoat()
- mknodat()
- utimensat()

## 4.57 <sys/statvfs.h>

The following methods and variables in <sys/statvfs.h> are supported:

- statvfs()

The following methods and variables in <sys/statvfs.h> are not supported:

- fstatvfs()

## 4.58 <sys/time.h>

The following methods and variables in <sys/time.h> are supported:

- times()
- utimes()

## 4.59 <sys/uio.h>

The following methods and variables in <sys/uio.h> are supported:

- readv()
- writev()

## 4.60 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 4.61 <sys/wait.h>

The following methods and variables in <sys/wait.h> are supported:

- wait()
- waitpid()

The following methods and variables in <sys/wait.h> are not supported:

- waitid()

## 4.62 <syslog.h>

The following methods and variables in <syslog.h> are not supported:

- closelog()
- openlog()
- setlogmask()
- syslog()

## 4.63 <termios.h>

The following methods and variables in <termios.h> are supported:

- cfgetispeed()
- cfgetospeed()
- cfsetispeed()
- cfsetospeed()
- tcdrain()
- tcflow()
- tcflush()
- tcgetattr()
- tcsendbreak()
- tcsetattr()

The following methods and variables in <termios.h> are not supported:

- tcgetsid()

## 4.64 <threads.h>

The following methods and variables in <threads.h> are supported:

- call_once()
- cnd_broadcast()
- cnd_destroy()
- cnd_init()
- cnd_signal()
- cnd_timedwait()
- cnd_wait()
- mtx_destroy()
- mtx_init()
- mtx_lock()
- mtx_timedlock()
- mtx_trylock()
- mtx_unlock()
- thrd_create()
- thrd_current()
- thrd_detach()
- thrd_equal()
- thrd_exit()
- thrd_join()
- thrd_sleep()
- thrd_yield()
- tss_create()
- tss_delete()
- tss_get()
- tss_set()

## 4.65 <time.h>

The following methods and variables in <time.h> are supported:

- asctime()
- asctime_r()
- clock()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime()
- ctime_r()
- difftime()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- strftime_l()
- strptime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- timezone
- tzname
- tzset()

The following methods in <time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- clock_getcpuclockid()

The following methods and variables in <time.h> are not supported:

- daylight

- `getdate()`
- `getdate_err`

## 4.66 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- _exit()
- access()
- alarm()
- chdir()
- chown()
- close()
- dup()
- dup2()
- environ
- fchdir()
- fchown()
- fdatasync()
- fpathconf()
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getlogin()
- getlogin_r()
- getopt()
- getpgrp()
- getpid()
- getppid()
- getuid()
- isatty()
- lchown()
- link()
- lseek()

- optarg
- opterr
- optind
- optopt
- pathconf()
- pause()
- pipe()
- pread()
- pwrite()
- read()
- readlink()
- rmdir()
- setegid()
- seteuid()
- setgid()
- setpgid()
- setsid()
- setuid()
- sleep()
- swab()
- symlink()
- sync()
- sysconf()
- tcgetpgrp()
- tcsetpgrp()
- truncate()
- ttyname()
- ttyname_r()
- unlink()
- write()

The following methods in <unistd.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- execl()
- execle()
- execlp()

- execv()
- execve()
- execvp()
- fork()

The following methods and variables in <unistd.h> are not supported:

- confstr()
- crypt()
- encrypt()
- faccessat()
- fchownat()
- fexecve()
- gethostid()
- getpgid()
- getsid()
- linkat()
- lockf()
- nice()
- readlinkat()
- setregid()
- setreuid()
- symlinkat()
- unlinkat()

## 4.67 <utmpx.h>

The following methods and variables in <utmpx.h> are not supported:

- endutxent()
- getutxent()
- getutxid()
- getutxline()
- pututxline()
- setutxent()

## 4.68 <wchar.h>

The following methods and variables in <wchar.h> are supported:

- btowc()
- fgetwc()
- fgetws()
- fputwc()
- fputws()
- fwide()
- fwprintf()
- fwscanf()
- getwc()
- getwchar()
- mbrlen()
- mbrtowc()
- mbsinit()
- mbsnrtowcs()
- mbsrtowcs()
- open_wmemstream()
- putwc()
- putwchar()
- swprintf()
- swscanf()
- ungetwc()
- vfwprintf()
- vfwscanf()
- vswprintf()
- vswscanf()
- vwprintf()
- vwscanf()
- wcpcpy()
- wcpncpy()
- wcrtomb()
- wcscasecmp()
- wcscasecmp_l()

- wcscat()
- wcschr()
- wcscmp()
- wcscoll()
- wcscoll_l()
- wcscpy()
- wcscspn()
- wcsdup()
- wcsftime()
- wcslcat()
- wcslcpy()
- wcslen()
- wcsncasecmp()
- wcsncat()
- wcsncmp()
- wcsncpy()
- wcsnlen()
- wcsnrtombs()
- wcspbrk()
- wcsrchr()
- wcsrtombs()
- wcsspn()
- wcsstr()
- wcstod()
- wcstof()
- wcstok()
- wcstol()
- wcstold()
- wcstoll()
- wcstoul()
- wcstoull()
- wcswidth()
- wcsxfrm()
- wcsxfrm_l()

- wctob()
- wcwidth()
- wmemchr()
- wmemcmp()
- wmemcpy()
- wmemmove()
- wmemset()
- wprintf()
- wscanf()

The following methods and variables in <wchar.h> are not supported:

- wcsncasemcp_l()

## 4.69 <wctype.h>

The following methods and variables in <wctype.h> are supported:

- iswalnum()
- iswalnum_l()
- iswalpha()
- iswalpha_l()
- iswblank()
- iswblank_l()
- iswcntrl()
- iswcntrl_l()
- iswctype()
- iswctype_l()
- iswdigit()
- iswdigit_l()
- iswgraph()
- iswgraph_l()
- iswlower()
- iswlower_l()
- iswprint()
- iswprint_l()
- iswpunct()
- iswpunct_l()
- iswspace()
- iswspace_l()
- iswupper()
- iswupper_l()
- iswxdigit()
- iswxdigit_l()
- towctrans()
- towctrans_l()
- towlower()
- towlower_l()
- towupper()
- towupper_l()

- wctrans()
- wctrans_l()
- wctype()
- wctype_l()

## 4.70 <wordexp.h>

The following methods and variables in <wordexp.h> are not supported:

- wordexp()
- wordfree()

CHAPTER

**FIVE**

# POSIX-2017 (ISSUE 7)

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 5.1 Summary

The follow table summarizes alignment with the POSIX-2017 (Issue 7) standard:

| | |
|---|---|
| Supported | 986 |
| ENOSYS | 18 |
| Not supported | 192 |

## 5.2 <aio.h>

The following methods and variables in <aio.h> are supported:

- aio_cancel()
- aio_error()
- aio_fsync()
- aio_read()
- aio_return()
- aio_write()
- lio_listio()

The following methods in <aio.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- aio_suspend()

## 5.3 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_addr()
- inet_ntoa()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 5.4 <assert.h>

The following methods and variables in <assert.h> are supported:

- assert()

## 5.5 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 5.6 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- _tolower()
- _toupper()
- isalnum()
- isalnum_l()
- isalpha()
- isalpha_l()
- isascii()
- isblank()
- isblank_l()
- iscntrl()
- iscntrl_l()
- isdigit()
- isdigit_l()
- isgraph()
- isgraph_l()
- islower()
- islower_l()
- isprint()
- isprint_l()
- ispunct()
- ispunct_l()
- isspace()
- isspace_l()
- isupper()
- isupper_l()
- isxdigit()
- isxdigit_l()
- toascii()
- tolower()
- tolower_l()
- toupper()
- toupper_l()

## 5.7 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- alphasort()
- closedir()
- fdopendir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()
- scandir()
- seekdir()
- telldir()

The following methods and variables in <dirent.h> are not supported:

- dirfd()

## 5.8 <dlfcn.h>

The following methods and variables in <dlfcn.h> are supported:

- dlclose()
- dlerror()
- dlopen()
- dlsym()

## 5.9 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 5.10 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

The following methods and variables in <fcntl.h> are not supported:

- openat()
- posix_fadvise()
- posix_fallocate()
- posix_openpt()

## 5.11 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 5.12 <fmtmsg.h>

The following methods and variables in <fmtmsg.h> are not supported:

- fmtmsg()

## 5.13 <fnmatch.h>

The following methods and variables in <fnmatch.h> are supported:

- fnmatch()

## 5.14 <ftw.h>

The following methods and variables in <ftw.h> are supported:

- ftw()
- nftw()

## 5.15 <glob.h>

The following methods and variables in <glob.h> are supported:

- glob()
- globfree()

## 5.16 <grp.h>

The following methods and variables in <grp.h> are supported:

- endgrent()
- getgrent()
- getgrgid()
- getgrgid_r()
- getgrnam()
- getgrnam_r()
- setgrent()

## 5.17 <iconv.h>

The following methods and variables in <iconv.h> are supported:

- iconv()
- iconv_close()
- iconv_open()

## 5.18 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()
- wcstoimax()
- wcstoumax()

## 5.19 <langinfo.h>

The following methods and variables in <langinfo.h> are supported:

- nl_langinfo()
- nl_langinfo_l()

## 5.20 <libgen.h>

The following methods and variables in <libgen.h> are supported:

- basename()
- dirname()

## 5.21 <locale.h>

The following methods and variables in <locale.h> are supported:

- duplocale()
- freelocale()
- localeconv()
- newlocale()
- setlocale()
- uselocale()

## 5.22 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()
- sqrt()

- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- j0()
- j1()
- jn()
- signbit()
- signgam
- y0()
- y1()
- yn()

## 5.23 <monetary.h>

The following methods and variables in <monetary.h> are not supported:

- strfmon()
- strfmon_l()

## 5.24 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 5.25 <ndbm.h>

The following methods and variables in <ndbm.h> are supported:

- dbm_clearerr()
- dbm_close()
- dbm_delete()
- dbm_error()
- dbm_fetch()
- dbm_firstkey()
- dbm_nextkey()
- dbm_open()
- dbm_store()

## 5.26 <net/if.h>

The following methods and variables in <net/if.h> are supported:

- if_freenameindex()
- if_indextoname()
- if_nameindex()
- if_nametoindex()

## 5.27 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- endhostent()
- endnetent()
- endprotoent()
- endservent()
- freeaddrinfo()
- gai_strerror()
- getaddrinfo()
- gethostent()
- getnameinfo()
- getnetbyaddr()
- getnetbyname()
- getnetent()
- getprotobyname()
- getprotobynumber()
- getprotoent()
- getservbyname()
- getservbyport()
- getservent()
- sethostent()
- setnetent()
- setprotoent()
- setservent()

## 5.28 <nl_types.h>

The following methods and variables in <nl_types.h> are not supported:

- catclose()
- catgets()
- catopen()

## 5.29 <poll.h>

The following methods and variables in <poll.h> are supported:

- poll()

## 5.30 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_barrier_destroy()
- pthread_barrier_init()
- pthread_barrier_wait()
- pthread_barrierattr_destroy()
- pthread_barrierattr_getpshared()
- pthread_barrierattr_init()
- pthread_barrierattr_setpshared()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()

- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_getpshared()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_condattr_setpshared()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getconcurrency()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_getpshared()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()

- pthread_mutexattr_setpshared()
- pthread_mutexattr_settype()
- pthread_once()
- pthread_rwlock_destroy()
- pthread_rwlock_init()
- pthread_rwlock_rdlock()
- pthread_rwlock_timedrdlock()
- pthread_rwlock_timedwrlock()
- pthread_rwlock_tryrdlock()
- pthread_rwlock_trywrlock()
- pthread_rwlock_unlock()
- pthread_rwlock_wrlock()
- pthread_rwlockattr_destroy()
- pthread_rwlockattr_getpshared()
- pthread_rwlockattr_init()
- pthread_rwlockattr_setpshared()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setconcurrency()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_spin_destroy()
- pthread_spin_init()
- pthread_spin_lock()
- pthread_spin_trylock()
- pthread_spin_unlock()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

The following methods and variables in <pthread.h> are not supported:

- pthread_mutex_consistent()

- pthread_mutexattr_getrobust()
- pthread_mutexattr_setrobust()

## 5.31 <pwd.h>

The following methods and variables in <pwd.h> are supported:

- endpwent()
- getpwent()
- getpwnam()
- getpwnam_r()
- getpwuid()
- getpwuid_r()
- setpwent()

## 5.32 <regex.h>

The following methods and variables in <regex.h> are supported:

- regcomp()
- regerror()
- regexec()
- regfree()

## 5.33 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

The following methods in <sched.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- sched_getparam()
- sched_getscheduler()
- sched_setparam()
- sched_setscheduler()

## 5.34 <search.h>

The following methods and variables in <search.h> are supported:

- hcreate()
- hdestroy()
- hsearch()
- tdelete()
- tfind()
- tsearch()
- twalk()

The following methods and variables in <search.h> are not supported:

- insque()
- lfind()
- lsearch()
- remque()

## 5.35 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 5.36 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()
- siglongjmp()
- sigsetjmp()

The following methods and variables in <setjmp.h> are not supported:

- _longjmp()
- _setjmp()

## 5.37 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- psignal()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

The following methods and variables in <signal.h> are not supported:

- killpg()
- psiginfo()
- sigaltstack()
- sighold()
- sigignore()
- siginterrupt()
- sigpause()
- sigrelse()
- sigset()

## 5.38 <spawn.h>

The following methods and variables in <spawn.h> are not supported:

- posix_spawn()
- posix_spawn_file_actions_addclose()
- posix_spawn_file_actions_adddup2()
- posix_spawn_file_actions_addopen()
- posix_spawn_file_actions_destroy()
- posix_spawn_file_actions_init()
- posix_spawnattr_destroy()
- posix_spawnattr_getflags()
- posix_spawnattr_getpgroup()
- posix_spawnattr_getschedparam()
- posix_spawnattr_getschedpolicy()
- posix_spawnattr_getsigdefault()
- posix_spawnattr_getsigmask()
- posix_spawnattr_init()
- posix_spawnattr_setflags()
- posix_spawnattr_setpgroup()
- posix_spawnattr_setschedparam()
- posix_spawnattr_setschedpolicy()
- posix_spawnattr_setsigdefault()
- posix_spawnattr_setsigmask()
- posix_spawnp()

## 5.39 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 5.40 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 5.41 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 5.42 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- ctermid()
- dprintf()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fileno()
- flockfile()
- fmemopen()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- fsetpos()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- getc()
- getc_unlocked()
- getchar()

- getchar_unlocked()
- gets()
- open_memstream()
- perror()
- printf()
- putc()
- putc_unlocked()
- putchar()
- putchar_unlocked()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setbuf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tempnam()
- tmpfile()
- tmpnam()
- ungetc()
- vdprintf()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

The following methods and variables in <stdio.h> are not supported:

- getdelim()
- getline()
- pclose()
- popen()
- renameat()

## 5.43 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- _Exit()
- a64l()
- abort()
- abs()
- atexit()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- drand48()
- erand48()
- exit()
- free()
- getenv()
- getsubopt()
- jrand48()
- l64a()
- labs()
- lcong48()
- ldiv()
- llabs()
- lldiv()
- lrand48()
- malloc()
- mblen()
- mbstowcs()
- mbtowc()
- mkdtemp()
- mkstemp()

- mktime()
- mrand48()
- nrand48()
- posix_memalign()
- putenv()
- qsort()
- rand()
- rand_r()
- random()
- realloc()
- realpath()
- seed48()
- setenv()
- srand()
- srand48()
- srandom()
- strtod()
- strtof()
- strtol()
- strtold()
- strtoll()
- strtoul()
- strtoull()
- unsetenv()
- wcstombs()
- wctomb()

The following methods in <stdlib.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- system()

The following methods and variables in <stdlib.h> are not supported:

- grantpt()
- initstate()
- ptsname()
- setkey()
- setstate()

- unlockpt()

## 5.44 <string.h>

The following methods and variables in <string.h> are supported:

- memccpy()
- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- stpcpy()
- stpncpy()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcoll_l()
- strcpy()
- strcspn()
- strdup()
- strerror()
- strerror_l()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strndup()
- strnlen()
- strpbrk()
- strrchr()
- strsignal()
- strspn()
- strstr()
- strtok()
- strtok_r()

- strxfrm()
- strxfrm_l()

## 5.45 <strings.h>

The following methods and variables in <strings.h> are supported:

- ffs()
- strcasecmp()
- strcasecmp_l()
- strncasecmp()
- strncasecmp_l()

## 5.46 <stropts.h>

The following methods and variables in <stropts.h> are supported:

- ioctl()

The following methods and variables in <stropts.h> are not supported:

- fattach()
- fdetach()
- getmsg()
- getpmsg()
- isastream()
- putmsg()
- putpmsg()

## 5.47 <sys/ipc.h>

The following methods and variables in <sys/ipc.h> are not supported:

- ftok()

## 5.48 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlock()
- mlockall()
- mmap()
- mprotect()
- msync()
- munlock()
- munlockall()
- munmap()
- posix_madvise()
- shm_open()
- shm_unlink()

The following methods and variables in <sys/mman.h> are not supported:

- posix_mem_offset()
- posix_typed_mem_get_info()
- posix_typed_mem_open()

## 5.49 <sys/msg.h>

The following methods and variables in <sys/msg.h> are not supported:

- msgctl()
- msgget()
- msgrcv()
- msgsnd()

## 5.50 <sys/resource.h>

The following methods and variables in <sys/resource.h> are supported:

- getrusage()

The following methods and variables in <sys/resource.h> are not supported:

- getpriority()
- getrlimit()
- setpriority()
- setrlimit()

## 5.51 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

The following methods and variables in <sys/select.h> are not supported:

- pselect()

## 5.52 <sys/sem.h>

The following methods and variables in <sys/sem.h> are not supported:

- semctl()
- semget()
- semop()

## 5.53 <sys/shm.h>

The following methods and variables in <sys/shm.h> are not supported:

- shmat()
- shmctl()
- shmdt()
- shmget()

## 5.54 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- recvmsg()
- send()
- sendmsg()
- sendto()
- setsockopt()
- shutdown()
- socket()
- socketpair()

The following methods and variables in <sys/socket.h> are not supported:

- sockatmark()

## 5.55 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fchmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- mknod()
- stat()
- umask()

The following methods and variables in <sys/stat.h> are not supported:

- fchmodat()
- fstatat()
- futimens()
- mkdirat()
- mkfifoat()
- mknodat()
- utimensat()

## 5.56 <sys/statvfs.h>

The following methods and variables in <sys/statvfs.h> are supported:

- statvfs()

The following methods and variables in <sys/statvfs.h> are not supported:

- fstatvfs()

## 5.57 <sys/time.h>

The following methods and variables in <sys/time.h> are supported:

- gettimeofday()
- times()
- utimes()

The following methods in <sys/time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- getitimer()
- setitimer()

## 5.58 <sys/uio.h>

The following methods and variables in <sys/uio.h> are supported:

- readv()
- writev()

## 5.59 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 5.60 <sys/wait.h>

The following methods and variables in <sys/wait.h> are supported:

- wait()
- waitpid()

The following methods and variables in <sys/wait.h> are not supported:

- waitid()

## 5.61 <syslog.h>

The following methods and variables in <syslog.h> are not supported:

- closelog()
- openlog()
- setlogmask()
- syslog()

## 5.62 <termios.h>

The following methods and variables in <termios.h> are supported:

- cfgetispeed()
- cfgetospeed()
- cfsetispeed()
- cfsetospeed()
- tcdrain()
- tcflow()
- tcflush()
- tcgetattr()
- tcsendbreak()
- tcsetattr()

The following methods and variables in <termios.h> are not supported:

- tcgetsid()

## 5.63 <time.h>

The following methods and variables in <time.h> are supported:

- asctime()
- asctime_r()
- clock()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime()
- ctime_r()
- difftime()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- strftime_l()
- strptime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- timezone
- tzname
- tzset()

The following methods in <time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- clock_getcpuclockid()

The following methods and variables in <time.h> are not supported:

- daylight

- getdate()
- getdate_err

## 5.64 <trace.h>

The following methods and variables in <trace.h> are not supported:

- posix_trace_attr_destroy()
- posix_trace_attr_getclockres()
- posix_trace_attr_getcreatetime()
- posix_trace_attr_getgenversion()
- posix_trace_attr_getinherited()
- posix_trace_attr_getlogfullpolicy()
- posix_trace_attr_getlogsize()
- posix_trace_attr_getmaxdatasize()
- posix_trace_attr_getmaxsystemeventsize()
- posix_trace_attr_getmaxusereventsize()
- posix_trace_attr_getname()
- posix_trace_attr_getstreamfullpolicy()
- posix_trace_attr_getstreamsize()
- posix_trace_attr_init()
- posix_trace_attr_setinherited()
- posix_trace_attr_setlogfullpolicy()
- posix_trace_attr_setlogsize()
- posix_trace_attr_setmaxdatasize()
- posix_trace_attr_setname()
- posix_trace_attr_setstreamfullpolicy()
- posix_trace_attr_setstreamsize()
- posix_trace_clear()
- posix_trace_close()
- posix_trace_create()
- posix_trace_create_withlog()
- posix_trace_event()
- posix_trace_eventid_equal()
- posix_trace_eventid_get_name()
- posix_trace_eventid_open()
- posix_trace_eventset_add()
- posix_trace_eventset_del()
- posix_trace_eventset_empty()

- posix_trace_eventset_fill()
- posix_trace_eventset_ismember()
- posix_trace_eventtypelist_getnext_id()
- posix_trace_eventtypelist_rewind()
- posix_trace_flush()
- posix_trace_get_attr()
- posix_trace_get_filter()
- posix_trace_get_status()
- posix_trace_getnext_event()
- posix_trace_open()
- posix_trace_rewind()
- posix_trace_set_filter()
- posix_trace_shutdown()
- posix_trace_start()
- posix_trace_stop()
- posix_trace_timedgetnext_event()
- posix_trace_trid_eventid_open()
- posix_trace_trygetnext_event()

## 5.65 <ulimit.h>

The following methods and variables in <ulimit.h> are not supported:

- ulimit()

## 5.66 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- _exit()
- access()
- alarm()
- chdir()
- chown()
- close()
- dup()
- dup2()
- environ
- fchdir()
- fchown()
- fdatasync()
- fpathconf()
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getlogin()
- getlogin_r()
- getopt()
- getpgrp()
- getpid()
- getppid()
- getuid()
- isatty()
- lchown()
- link()
- lseek()

- optarg
- opterr
- optind
- optopt
- pathconf()
- pause()
- pipe()
- pread()
- pwrite()
- read()
- readlink()
- rmdir()
- setegid()
- seteuid()
- setgid()
- setpgid()
- setsid()
- setuid()
- sleep()
- swab()
- symlink()
- sync()
- sysconf()
- tcgetpgrp()
- tcsetpgrp()
- truncate()
- ttyname()
- ttyname_r()
- unlink()
- write()

The following methods in <unistd.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- execl()
- execle()
- execlp()

- execv()
- execve()
- execvp()
- fork()

The following methods and variables in <unistd.h> are not supported:

- confstr()
- crypt()
- encrypt()
- faccessat()
- fchownat()
- fexecve()
- gethostid()
- getpgid()
- getsid()
- linkat()
- lockf()
- nice()
- readlinkat()
- setpgrp()
- setregid()
- setreuid()
- symlinkat()
- unlinkat()

## 5.67 <utime.h>

The following methods and variables in <utime.h> are supported:

- utime()

## 5.68 <utmpx.h>

The following methods and variables in <utmpx.h> are not supported:

- endutxent()
- getutxent()
- getutxid()
- getutxline()
- pututxline()
- setutxent()

## 5.69 <wchar.h>

The following methods and variables in <wchar.h> are supported:

- btowc()
- fgetwc()
- fgetws()
- fputwc()
- fputws()
- fwide()
- fwprintf()
- fwscanf()
- getwc()
- getwchar()
- mbrlen()
- mbrtowc()
- mbsinit()
- mbsnrtowcs()
- mbsrtowcs()
- open_wmemstream()
- putwc()
- putwchar()
- swprintf()
- swscanf()
- ungetwc()
- vfwprintf()
- vfwscanf()
- vswprintf()
- vswscanf()
- vwprintf()
- vwscanf()
- wcpcpy()
- wcpncpy()
- wcrtomb()
- wcscasecmp()
- wcscasecmp_l()

- wcscat()
- wcschr()
- wcscmp()
- wcscoll()
- wcscoll_l()
- wcscpy()
- wcscspn()
- wcsdup()
- wcsftime()
- wcslen()
- wcsncasecmp()
- wcsncat()
- wcsncmp()
- wcsncpy()
- wcsnlen()
- wcsnrtombs()
- wcspbrk()
- wcsrchr()
- wcsrtombs()
- wcsspn()
- wcsstr()
- wcstod()
- wcstof()
- wcstok()
- wcstol()
- wcstold()
- wcstoll()
- wcstoul()
- wcstoull()
- wcswidth()
- wcsxfrm()
- wcsxfrm_l()
- wctob()
- wcwidth()

- wmemchr()
- wmemcmp()
- wmemcpy()
- wmemmove()
- wmemset()
- wprintf()
- wscanf()

The following methods and variables in <wchar.h> are not supported:

- wcsncasemcp_l()

## 5.70 <wctype.h>

The following methods and variables in <wctype.h> are supported:

- iswalnum()
- iswalnum_l()
- iswalpha()
- iswalpha_l()
- iswblank()
- iswblank_l()
- iswcntrl()
- iswcntrl_l()
- iswctype()
- iswctype_l()
- iswdigit()
- iswdigit_l()
- iswgraph()
- iswgraph_l()
- iswlower()
- iswlower_l()
- iswprint()
- iswprint_l()
- iswpunct()
- iswpunct_l()
- iswspace()
- iswspace_l()
- iswupper()
- iswupper_l()
- iswxdigit()
- iswxdigit_l()
- towctrans()
- towctrans_l()
- towlower()
- towlower_l()
- towupper()
- towupper_l()

- wctrans()
- wctrans_l()
- wctype()
- wctype_l()

## 5.71 <wordexp.h>

The following methods and variables in <wordexp.h> are not supported:

- wordexp()
- wordfree()

CHAPTER

**SIX**

# POSIX-2008 (ISSUE 6 TC2)

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 6.1 Summary

The follow table summarizes alignment with the POSIX-2008 (Issue 6 TC2) standard:

| | |
|---|---|
| Supported | 986 |
| ENOSYS | 18 |
| Not supported | 192 |

## 6.2 <aio.h>

The following methods and variables in <aio.h> are supported:

- aio_cancel()
- aio_error()
- aio_fsync()
- aio_read()
- aio_return()
- aio_write()
- lio_listio()

The following methods in <aio.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- aio_suspend()

## 6.3 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_addr()
- inet_ntoa()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 6.4 <assert.h>

The following methods and variables in <assert.h> are supported:

- assert()

## 6.5 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 6.6 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- _tolower()
- _toupper()
- isalnum()
- isalnum_l()
- isalpha()
- isalpha_l()
- isascii()
- isblank()
- isblank_l()
- iscntrl()
- iscntrl_l()
- isdigit()
- isdigit_l()
- isgraph()
- isgraph_l()
- islower()
- islower_l()
- isprint()
- isprint_l()
- ispunct()
- ispunct_l()
- isspace()
- isspace_l()
- isupper()
- isupper_l()
- isxdigit()
- isxdigit_l()
- toascii()
- tolower()
- tolower_l()
- toupper()
- toupper_l()

## 6.7 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- alphasort()
- closedir()
- fdopendir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()
- scandir()
- seekdir()
- telldir()

The following methods and variables in <dirent.h> are not supported:

- dirfd()

## 6.8 <dlfcn.h>

The following methods and variables in <dlfcn.h> are supported:

- dlclose()
- dlerror()
- dlopen()
- dlsym()

## 6.9 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 6.10 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

The following methods and variables in <fcntl.h> are not supported:

- openat()
- posix_fadvise()
- posix_fallocate()
- posix_openpt()

## 6.11 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 6.12 <fmtmsg.h>

The following methods and variables in <fmtmsg.h> are not supported:

- fmtmsg()

## 6.13 <fnmatch.h>

The following methods and variables in <fnmatch.h> are supported:

- fnmatch()

## 6.14 <ftw.h>

The following methods and variables in <ftw.h> are supported:

- ftw()
- nftw()

## 6.15 <glob.h>

The following methods and variables in <glob.h> are supported:

- glob()
- globfree()

## 6.16 <grp.h>

The following methods and variables in <grp.h> are supported:

- endgrent()
- getgrent()
- getgrgid()
- getgrgid_r()
- getgrnam()
- getgrnam_r()
- setgrent()

## 6.17 <iconv.h>

The following methods and variables in <iconv.h> are supported:

- iconv()
- iconv_close()
- iconv_open()

## 6.18 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()
- wcstoimax()
- wcstoumax()

## 6.19 <langinfo.h>

The following methods and variables in <langinfo.h> are supported:

- nl_langinfo()
- nl_langinfo_l()

## 6.20 <libgen.h>

The following methods and variables in <libgen.h> are supported:

- basename()
- dirname()

## 6.21 <locale.h>

The following methods and variables in <locale.h> are supported:

- duplocale()
- freelocale()
- localeconv()
- newlocale()
- setlocale()
- uselocale()

## 6.22 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()
- sqrt()

- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- j0()
- j1()
- jn()
- signbit()
- signgam
- y0()
- y1()
- yn()

## 6.23 <monetary.h>

The following methods and variables in <monetary.h> are not supported:

- strfmon()
- strfmon_l()

## 6.24 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 6.25 <ndbm.h>

The following methods and variables in <ndbm.h> are supported:

- dbm_clearerr()
- dbm_close()
- dbm_delete()
- dbm_error()
- dbm_fetch()
- dbm_firstkey()
- dbm_nextkey()
- dbm_open()
- dbm_store()

## 6.26 <net/if.h>

The following methods and variables in <net/if.h> are supported:

- if_freenameindex()
- if_indextoname()
- if_nameindex()
- if_nametoindex()

## 6.27 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- endhostent()
- endnetent()
- endprotoent()
- endservent()
- freeaddrinfo()
- gai_strerror()
- getaddrinfo()
- gethostent()
- getnameinfo()
- getnetbyaddr()
- getnetbyname()
- getnetent()
- getprotobyname()
- getprotobynumber()
- getprotoent()
- getservbyname()
- getservbyport()
- getservent()
- sethostent()
- setnetent()
- setprotoent()
- setservent()

## 6.28 <nl_types.h>

The following methods and variables in <nl_types.h> are not supported:

- catclose()
- catgets()
- catopen()

## 6.29 <poll.h>

The following methods and variables in <poll.h> are supported:

- poll()

## 6.30 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_barrier_destroy()
- pthread_barrier_init()
- pthread_barrier_wait()
- pthread_barrierattr_destroy()
- pthread_barrierattr_getpshared()
- pthread_barrierattr_init()
- pthread_barrierattr_setpshared()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()

- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_getpshared()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_condattr_setpshared()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getconcurrency()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_getpshared()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()

- pthread_mutexattr_setpshared()
- pthread_mutexattr_settype()
- pthread_once()
- pthread_rwlock_destroy()
- pthread_rwlock_init()
- pthread_rwlock_rdlock()
- pthread_rwlock_timedrdlock()
- pthread_rwlock_timedwrlock()
- pthread_rwlock_tryrdlock()
- pthread_rwlock_trywrlock()
- pthread_rwlock_unlock()
- pthread_rwlock_wrlock()
- pthread_rwlockattr_destroy()
- pthread_rwlockattr_getpshared()
- pthread_rwlockattr_init()
- pthread_rwlockattr_setpshared()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setconcurrency()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_spin_destroy()
- pthread_spin_init()
- pthread_spin_lock()
- pthread_spin_trylock()
- pthread_spin_unlock()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

The following methods and variables in <pthread.h> are not supported:

- pthread_mutex_consistent()

- pthread_mutexattr_getrobust()
- pthread_mutexattr_setrobust()

## 6.31 <pwd.h>

The following methods and variables in <pwd.h> are supported:

- endpwent()
- getpwent()
- getpwnam()
- getpwnam_r()
- getpwuid()
- getpwuid_r()
- setpwent()

## 6.32 <regex.h>

The following methods and variables in <regex.h> are supported:

- regcomp()
- regerror()
- regexec()
- regfree()

## 6.33 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

The following methods in <sched.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- sched_getparam()
- sched_getscheduler()
- sched_setparam()
- sched_setscheduler()

## 6.34 <search.h>

The following methods and variables in <search.h> are supported:

- hcreate()
- hdestroy()
- hsearch()
- tdelete()
- tfind()
- tsearch()
- twalk()

The following methods and variables in <search.h> are not supported:

- insque()
- lfind()
- lsearch()
- remque()

## 6.35 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 6.36 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()
- siglongjmp()
- sigsetjmp()

The following methods and variables in <setjmp.h> are not supported:

- _longjmp()
- _setjmp()

## 6.37 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- psignal()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

The following methods and variables in <signal.h> are not supported:

- killpg()
- psiginfo()
- sigaltstack()
- sighold()
- sigignore()
- siginterrupt()
- sigpause()
- sigrelse()
- sigset()

## 6.38 <spawn.h>

The following methods and variables in <spawn.h> are not supported:

- posix_spawn()
- posix_spawn_file_actions_addclose()
- posix_spawn_file_actions_adddup2()
- posix_spawn_file_actions_addopen()
- posix_spawn_file_actions_destroy()
- posix_spawn_file_actions_init()
- posix_spawnattr_destroy()
- posix_spawnattr_getflags()
- posix_spawnattr_getpgroup()
- posix_spawnattr_getschedparam()
- posix_spawnattr_getschedpolicy()
- posix_spawnattr_getsigdefault()
- posix_spawnattr_getsigmask()
- posix_spawnattr_init()
- posix_spawnattr_setflags()
- posix_spawnattr_setpgroup()
- posix_spawnattr_setschedparam()
- posix_spawnattr_setschedpolicy()
- posix_spawnattr_setsigdefault()
- posix_spawnattr_setsigmask()
- posix_spawnp()

## 6.39 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 6.40 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 6.41 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 6.42 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- ctermid()
- dprintf()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fileno()
- flockfile()
- fmemopen()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- fsetpos()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- getc()
- getc_unlocked()
- getchar()

- getchar_unlocked()
- gets()
- open_memstream()
- perror()
- printf()
- putc()
- putc_unlocked()
- putchar()
- putchar_unlocked()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setbuf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tempnam()
- tmpfile()
- tmpnam()
- ungetc()
- vdprintf()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

The following methods and variables in <stdio.h> are not supported:

- getdelim()
- getline()
- pclose()
- popen()
- renameat()

## 6.43 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- _Exit()
- a64l()
- abort()
- abs()
- atexit()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- drand48()
- erand48()
- exit()
- free()
- getenv()
- getsubopt()
- jrand48()
- l64a()
- labs()
- lcong48()
- ldiv()
- llabs()
- lldiv()
- lrand48()
- malloc()
- mblen()
- mbstowcs()
- mbtowc()
- mkdtemp()
- mkstemp()

- mktime()
- mrand48()
- nrand48()
- posix_memalign()
- putenv()
- qsort()
- rand()
- rand_r()
- random()
- realloc()
- realpath()
- seed48()
- setenv()
- srand()
- srand48()
- srandom()
- strtod()
- strtof()
- strtol()
- strtold()
- strtoll()
- strtoul()
- strtoull()
- unsetenv()
- wcstombs()
- wctomb()

The following methods in <stdlib.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- system()

The following methods and variables in <stdlib.h> are not supported:

- grantpt()
- initstate()
- ptsname()
- setkey()
- setstate()

- unlockpt()

## 6.44 <string.h>

The following methods and variables in <string.h> are supported:

- memccpy()
- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- stpcpy()
- stpncpy()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcoll_l()
- strcpy()
- strcspn()
- strdup()
- strerror()
- strerror_l()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strndup()
- strnlen()
- strpbrk()
- strrchr()
- strsignal()
- strspn()
- strstr()
- strtok()
- strtok_r()

- strxfrm()
- strxfrm_l()

## 6.45 <strings.h>

The following methods and variables in <strings.h> are supported:

- ffs()
- strcasecmp()
- strcasecmp_l()
- strncasecmp()
- strncasecmp_l()

## 6.46 <stropts.h>

The following methods and variables in <stropts.h> are supported:

- ioctl()

The following methods and variables in <stropts.h> are not supported:

- fattach()
- fdetach()
- getmsg()
- getpmsg()
- isastream()
- putmsg()
- putpmsg()

## 6.47 <sys/ipc.h>

The following methods and variables in <sys/ipc.h> are not supported:

- ftok()

## 6.48 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlock()
- mlockall()
- mmap()
- mprotect()
- msync()
- munlock()
- munlockall()
- munmap()
- posix_madvise()
- shm_open()
- shm_unlink()

The following methods and variables in <sys/mman.h> are not supported:

- posix_mem_offset()
- posix_typed_mem_get_info()
- posix_typed_mem_open()

## 6.49 <sys/msg.h>

The following methods and variables in <sys/msg.h> are not supported:

- msgctl()
- msgget()
- msgrcv()
- msgsnd()

## 6.50 <sys/resource.h>

The following methods and variables in <sys/resource.h> are supported:

- getrusage()

The following methods and variables in <sys/resource.h> are not supported:

- getpriority()
- getrlimit()
- setpriority()
- setrlimit()

## 6.51 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

The following methods and variables in <sys/select.h> are not supported:

- pselect()

## 6.52 <sys/sem.h>

The following methods and variables in <sys/sem.h> are not supported:

- semctl()
- semget()
- semop()

## 6.53 <sys/shm.h>

The following methods and variables in <sys/shm.h> are not supported:

- shmat()
- shmctl()
- shmdt()
- shmget()

## 6.54 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- recvmsg()
- send()
- sendmsg()
- sendto()
- setsockopt()
- shutdown()
- socket()
- socketpair()

The following methods and variables in <sys/socket.h> are not supported:

- sockatmark()

## 6.55 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fchmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- mknod()
- stat()
- umask()

The following methods and variables in <sys/stat.h> are not supported:

- fchmodat()
- fstatat()
- futimens()
- mkdirat()
- mkfifoat()
- mknodat()
- utimensat()

## 6.56 <sys/statvfs.h>

The following methods and variables in <sys/statvfs.h> are supported:

- statvfs()

The following methods and variables in <sys/statvfs.h> are not supported:

- fstatvfs()

## 6.57 <sys/time.h>

The following methods and variables in <sys/time.h> are supported:

- gettimeofday()
- times()
- utimes()

The following methods in <sys/time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- getitimer()
- setitimer()

## 6.58 <sys/uio.h>

The following methods and variables in <sys/uio.h> are supported:

- readv()
- writev()

## 6.59 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 6.60 <sys/wait.h>

The following methods and variables in <sys/wait.h> are supported:

- wait()
- waitpid()

The following methods and variables in <sys/wait.h> are not supported:

- waitid()

## 6.61 <syslog.h>

The following methods and variables in <syslog.h> are not supported:

- closelog()
- openlog()
- setlogmask()
- syslog()

## 6.62 <termios.h>

The following methods and variables in <termios.h> are supported:

- cfgetispeed()
- cfgetospeed()
- cfsetispeed()
- cfsetospeed()
- tcdrain()
- tcflow()
- tcflush()
- tcgetattr()
- tcsendbreak()
- tcsetattr()

The following methods and variables in <termios.h> are not supported:

- tcgetsid()

## 6.63 <time.h>

The following methods and variables in <time.h> are supported:

- asctime()
- asctime_r()
- clock()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime()
- ctime_r()
- difftime()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- strftime_l()
- strptime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- timezone
- tzname
- tzset()

The following methods in <time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- clock_getcpuclockid()

The following methods and variables in <time.h> are not supported:

- daylight

- getdate()
- getdate_err

## 6.64 <trace.h>

The following methods and variables in <trace.h> are not supported:

- posix_trace_attr_destroy()
- posix_trace_attr_getclockres()
- posix_trace_attr_getcreatetime()
- posix_trace_attr_getgenversion()
- posix_trace_attr_getinherited()
- posix_trace_attr_getlogfullpolicy()
- posix_trace_attr_getlogsize()
- posix_trace_attr_getmaxdatasize()
- posix_trace_attr_getmaxsystemeventsize()
- posix_trace_attr_getmaxusereventsize()
- posix_trace_attr_getname()
- posix_trace_attr_getstreamfullpolicy()
- posix_trace_attr_getstreamsize()
- posix_trace_attr_init()
- posix_trace_attr_setinherited()
- posix_trace_attr_setlogfullpolicy()
- posix_trace_attr_setlogsize()
- posix_trace_attr_setmaxdatasize()
- posix_trace_attr_setname()
- posix_trace_attr_setstreamfullpolicy()
- posix_trace_attr_setstreamsize()
- posix_trace_clear()
- posix_trace_close()
- posix_trace_create()
- posix_trace_create_withlog()
- posix_trace_event()
- posix_trace_eventid_equal()
- posix_trace_eventid_get_name()
- posix_trace_eventid_open()
- posix_trace_eventset_add()
- posix_trace_eventset_del()
- posix_trace_eventset_empty()

- posix_trace_eventset_fill()
- posix_trace_eventset_ismember()
- posix_trace_eventtypelist_getnext_id()
- posix_trace_eventtypelist_rewind()
- posix_trace_flush()
- posix_trace_get_attr()
- posix_trace_get_filter()
- posix_trace_get_status()
- posix_trace_getnext_event()
- posix_trace_open()
- posix_trace_rewind()
- posix_trace_set_filter()
- posix_trace_shutdown()
- posix_trace_start()
- posix_trace_stop()
- posix_trace_timedgetnext_event()
- posix_trace_trid_eventid_open()
- posix_trace_trygetnext_event()

## 6.65 <ulimit.h>

The following methods and variables in <ulimit.h> are not supported:

- ulimit()

## 6.66 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- _exit()
- access()
- alarm()
- chdir()
- chown()
- close()
- dup()
- dup2()
- environ
- fchdir()
- fchown()
- fdatasync()
- fpathconf()
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getlogin()
- getlogin_r()
- getopt()
- getpgrp()
- getpid()
- getppid()
- getuid()
- isatty()
- lchown()
- link()
- lseek()

- optarg
- opterr
- optind
- optopt
- pathconf()
- pause()
- pipe()
- pread()
- pwrite()
- read()
- readlink()
- rmdir()
- setegid()
- seteuid()
- setgid()
- setpgid()
- setsid()
- setuid()
- sleep()
- swab()
- symlink()
- sync()
- sysconf()
- tcgetpgrp()
- tcsetpgrp()
- truncate()
- ttyname()
- ttyname_r()
- unlink()
- write()

The following methods in <unistd.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- execl()
- execle()
- execlp()

- execv()
- execve()
- execvp()
- fork()

The following methods and variables in <unistd.h> are not supported:

- confstr()
- crypt()
- encrypt()
- faccessat()
- fchownat()
- fexecve()
- gethostid()
- getpgid()
- getsid()
- linkat()
- lockf()
- nice()
- readlinkat()
- setpgrp()
- setregid()
- setreuid()
- symlinkat()
- unlinkat()

## 6.67 <utime.h>

The following methods and variables in <utime.h> are supported:

- utime()

## 6.68 <utmpx.h>

The following methods and variables in <utmpx.h> are not supported:

- endutxent()
- getutxent()
- getutxid()
- getutxline()
- pututxline()
- setutxent()

## 6.69 <wchar.h>

The following methods and variables in <wchar.h> are supported:

- btowc()
- fgetwc()
- fgetws()
- fputwc()
- fputws()
- fwide()
- fwprintf()
- fwscanf()
- getwc()
- getwchar()
- mbrlen()
- mbrtowc()
- mbsinit()
- mbsnrtowcs()
- mbsrtowcs()
- open_wmemstream()
- putwc()
- putwchar()
- swprintf()
- swscanf()
- ungetwc()
- vfwprintf()
- vfwscanf()
- vswprintf()
- vswscanf()
- vwprintf()
- vwscanf()
- wcpcpy()
- wcpncpy()
- wcrtomb()
- wcscasecmp()
- wcscasecmp_l()

- wcscat()
- wcschr()
- wcscmp()
- wcscoll()
- wcscoll_l()
- wcscpy()
- wcscspn()
- wcsdup()
- wcsftime()
- wcslen()
- wcsncasecmp()
- wcsncat()
- wcsncmp()
- wcsncpy()
- wcsnlen()
- wcsnrtombs()
- wcspbrk()
- wcsrchr()
- wcsrtombs()
- wcsspn()
- wcsstr()
- wcstod()
- wcstof()
- wcstok()
- wcstol()
- wcstold()
- wcstoll()
- wcstoul()
- wcstoull()
- wcswidth()
- wcsxfrm()
- wcsxfrm_l()
- wctob()
- wcwidth()

- wmemchr()
- wmemcmp()
- wmemcpy()
- wmemmove()
- wmemset()
- wprintf()
- wscanf()

The following methods and variables in <wchar.h> are not supported:

- wcsncasemcp_l()

## 6.70 <wctype.h>

The following methods and variables in <wctype.h> are supported:

- iswalnum()
- iswalnum_l()
- iswalpha()
- iswalpha_l()
- iswblank()
- iswblank_l()
- iswcntrl()
- iswcntrl_l()
- iswctype()
- iswctype_l()
- iswdigit()
- iswdigit_l()
- iswgraph()
- iswgraph_l()
- iswlower()
- iswlower_l()
- iswprint()
- iswprint_l()
- iswpunct()
- iswpunct_l()
- iswspace()
- iswspace_l()
- iswupper()
- iswupper_l()
- iswxdigit()
- iswxdigit_l()
- towctrans()
- towctrans_l()
- towlower()
- towlower_l()
- towupper()
- towupper_l()

- wctrans()
- wctrans_l()
- wctype()
- wctype_l()

## 6.71 <wordexp.h>

The following methods and variables in <wordexp.h> are not supported:

- wordexp()
- wordfree()

CHAPTER

**SEVEN**

# POSIX-2003 (ISSUE 6)

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 7.1 Summary

The follow table summarizes alignment with the POSIX-2003 (Issue 6) standard:

| | |
|---|---|
| Supported | 938 |
| ENOSYS | 18 |
| Not supported | 166 |

## 7.2 <aio.h>

The following methods and variables in <aio.h> are supported:

- aio_cancel()
- aio_error()
- aio_fsync()
- aio_read()
- aio_return()
- aio_write()
- lio_listio()

The following methods in <aio.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- aio_suspend()

## 7.3 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_addr()
- inet_ntoa()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 7.4 <assert.h>

The following methods and variables in <assert.h> are supported:

- assert()

## 7.5 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 7.6 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- _tolower()
- _toupper()
- isalnum()
- isalpha()
- isascii()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- islower_l()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- toascii()
- tolower()
- toupper()

## 7.7 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()
- seekdir()

## 7.8 <dlfcn.h>

The following methods and variables in <dlfcn.h> are supported:

- dlclose()
- dlerror()
- dlopen()
- dlsym()

## 7.9 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 7.10 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

The following methods and variables in <fcntl.h> are not supported:

- posix_fadvise()
- posix_fallocate()
- posix_openpt()

## 7.11 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 7.12 <fmtmsg.h>

The following methods and variables in <fmtmsg.h> are not supported:

- fmtmsg()

## 7.13 <fnmatch.h>

The following methods and variables in <fnmatch.h> are supported:

- fnmatch()

## 7.14 <ftw.h>

The following methods and variables in <ftw.h> are supported:

- ftw()
- nftw()

## 7.15 <glob.h>

The following methods and variables in <glob.h> are supported:

- glob()
- globfree()

## 7.16 <grp.h>

The following methods and variables in <grp.h> are supported:

- endgrent()
- getgrent()
- getgrgid()
- getgrgid_r()
- getgrnam()
- getgrnam_r()
- setgrent()

## 7.17 <iconv.h>

The following methods and variables in <iconv.h> are supported:

- iconv()
- iconv_close()
- iconv_open()

## 7.18 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()
- wcstoimax()
- wcstoumax()

## 7.19 <langinfo.h>

The following methods and variables in <langinfo.h> are supported:

- nl_langinfo()

## 7.20 <libgen.h>

The following methods and variables in <libgen.h> are supported:

- basename()
- dirname()

## 7.21 <locale.h>

The following methods and variables in <locale.h> are supported:

- localeconv()
- setlocale()

## 7.22 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalb()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()

- sqrt()
- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- j0()
- j1()
- jn()
- signbit()
- signgam
- y0()
- y1()
- yn()

## 7.23 <monetary.h>

The following methods and variables in <monetary.h> are not supported:

- strfmon()

## 7.24 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 7.25 <ndbm.h>

The following methods and variables in <ndbm.h> are supported:

- dbm_clearerr()
- dbm_close()
- dbm_delete()
- dbm_error()
- dbm_fetch()
- dbm_firstkey()
- dbm_nextkey()
- dbm_open()
- dbm_store()

## 7.26 <net/if.h>

The following methods and variables in <net/if.h> are supported:

- if_freenameindex()
- if_indextoname()
- if_nameindex()
- if_nametoindex()

## 7.27 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- endhostent()
- endnetent()
- endprotoent()
- endservent()
- freeaddrinfo()
- gai_strerror()
- getaddrinfo()
- gethostbyaddr()
- gethostbyname()
- gethostent()
- getnameinfo()
- getnetbyaddr()
- getnetbyname()
- getnetent()
- getprotobyname()
- getprotobynumber()
- getprotoent()
- getservbyname()
- getservbyport()
- getservent()
- h_errno
- sethostent()
- setnetent()
- setprotoent()
- setservent()

## 7.28 <nl_types.h>

The following methods and variables in <nl_types.h> are not supported:

- catclose()
- catgets()
- catopen()

## 7.29 <poll.h>

The following methods and variables in <poll.h> are supported:

- poll()

## 7.30 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstackaddr()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstackaddr()
- pthread_attr_setstacksize()
- pthread_barrier_destroy()
- pthread_barrier_init()
- pthread_barrier_wait()
- pthread_barrierattr_destroy()
- pthread_barrierattr_getpshared()
- pthread_barrierattr_init()
- pthread_barrierattr_setpshared()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()

- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_getpshared()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_condattr_setpshared()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getconcurrency()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_getpshared()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()

- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_mutexattr_setpshared()
- pthread_mutexattr_settype()
- pthread_once()
- pthread_rwlock_destroy()
- pthread_rwlock_init()
- pthread_rwlock_rdlock()
- pthread_rwlock_timedrdlock()
- pthread_rwlock_timedwrlock()
- pthread_rwlock_tryrdlock()
- pthread_rwlock_trywrlock()
- pthread_rwlock_unlock()
- pthread_rwlock_wrlock()
- pthread_rwlockattr_destroy()
- pthread_rwlockattr_getpshared()
- pthread_rwlockattr_init()
- pthread_rwlockattr_setpshared()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setconcurrency()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_spin_destroy()
- pthread_spin_init()
- pthread_spin_lock()
- pthread_spin_trylock()
- pthread_spin_unlock()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

## 7.31 <pwd.h>

The following methods and variables in <pwd.h> are supported:

- endpwent()
- getpwent()
- getpwnam()
- getpwnam_r()
- getpwuid()
- getpwuid_r()
- setpwent()

## 7.32 <regex.h>

The following methods and variables in <regex.h> are supported:

- regcomp()
- regerror()
- regexec()
- regfree()

## 7.33 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

The following methods in <sched.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- sched_getparam()
- sched_getscheduler()
- sched_setparam()
- sched_setscheduler()

## 7.34 <search.h>

The following methods and variables in <search.h> are supported:

- hcreate()
- hdestroy()
- hsearch()
- tdelete()
- tfind()
- tsearch()
- twalk()

The following methods and variables in <search.h> are not supported:

- insque()
- lfind()
- lsearch()
- remque()

## 7.35 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 7.36 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()
- siglongjmp()
- sigsetjmp()

The following methods and variables in <setjmp.h> are not supported:

- _longjmp()
- _setjmp()

## 7.37 <signal.h>

The following methods and variables in <signal.h> are supported:

- bsd_signal()
- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

The following methods and variables in <signal.h> are not supported:

- killpg()
- sighold()
- sigignore()
- siginterrupt()
- sigpause()
- sigrelse()
- sigset()

## 7.38 <spawn.h>

The following methods and variables in <spawn.h> are not supported:

- posix_spawn()
- posix_spawn_file_actions_addclose()
- posix_spawn_file_actions_adddup2()
- posix_spawn_file_actions_addopen()
- posix_spawn_file_actions_destroy()
- posix_spawn_file_actions_init()
- posix_spawnattr_destroy()
- posix_spawnattr_getflags()
- posix_spawnattr_getpgroup()
- posix_spawnattr_getschedparam()
- posix_spawnattr_getschedpolicy()
- posix_spawnattr_getsigdefault()
- posix_spawnattr_getsigmask()
- posix_spawnattr_init()
- posix_spawnattr_setflags()
- posix_spawnattr_setpgroup()
- posix_spawnattr_setschedparam()
- posix_spawnattr_setschedpolicy()
- posix_spawnattr_setsigdefault()
- posix_spawnattr_setsigmask()
- posix_spawnp()

## 7.39 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 7.40 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 7.41 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 7.42 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- ctermid()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fileno()
- flockfile()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- fsetpos()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- getc()
- getc_unlocked()
- getchar()
- getchar_unlocked()
- gets()

- perror()
- printf()
- putc()
- putc_unlocked()
- putchar()
- putchar_unlocked()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setbuf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tempnam()
- tmpfile()
- tmpnam()
- ungetc()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

The following methods and variables in <stdio.h> are not supported:

- pclose()
- popen()

## 7.43 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- _Exit()
- a64l()
- abort()
- abs()
- atexit()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- drand48()
- ecvt()
- erand48()
- exit()
- fcvt()
- free()
- gcvt()
- getenv()
- getsubopt()
- jrand48()
- l64a()
- labs()
- lcong48()
- ldiv()
- llabs()
- lldiv()
- lrand48()
- malloc()
- mblen()
- mbstowcs()

- mbtowc()
- mkstemp()
- mktemp()
- mktime()
- mrand48()
- nrand48()
- posix_memalign()
- putenv()
- qsort()
- rand()
- rand_r()
- random()
- realloc()
- realpath()
- seed48()
- setenv()
- srand()
- srand48()
- srandom()
- strtod()
- strtof()
- strtol()
- strtold()
- strtoll()
- strtoul()
- strtoull()
- unsetenv()
- wcstombs()
- wctomb()

The following methods in <stdlib.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- system()

The following methods and variables in <stdlib.h> are not supported:

- grantpt()
- initstate()

- ptsname()
- setkey()
- setstate()
- unlockpt()

## 7.44 <string.h>

The following methods and variables in <string.h> are supported:

- memccpy()
- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcpy()
- strcspn()
- strdup()
- strerror()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strtok_r()
- strxfrm()

## 7.45 <strings.h>

The following methods and variables in <strings.h> are supported:

- bcmp()
- bcopy()
- bzero()
- ffs()
- ftime()
- index()
- rindex()
- strcasecmp()
- strncasecmp()

## 7.46 <stropts.h>

The following methods and variables in <stropts.h> are supported:

- ioctl()

The following methods and variables in <stropts.h> are not supported:

- fattach()
- fdetach()
- getmsg()
- getpmsg()
- isastream()
- putmsg()
- putpmsg()

## 7.47 <sys/ipc.h>

The following methods and variables in <sys/ipc.h> are not supported:

- ftok()

## 7.48 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlock()
- mlockall()
- mmap()
- mprotect()
- msync()
- munlock()
- munlockall()
- munmap()
- posix_madvise()
- shm_open()
- shm_unlink()

The following methods and variables in <sys/mman.h> are not supported:

- posix_mem_offset()
- posix_typed_mem_get_info()
- posix_typed_mem_open()

## 7.49 <sys/msg.h>

The following methods and variables in <sys/msg.h> are not supported:

- msgctl()
- msgget()
- msgrcv()
- msgsnd()

## 7.50 <sys/resource.h>

The following methods and variables in <sys/resource.h> are supported:

- getrusage()

The following methods and variables in <sys/resource.h> are not supported:

- getpriority()
- getrlimit()
- setpriority()
- setrlimit()

## 7.51 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

The following methods and variables in <sys/select.h> are not supported:

- pselect()

## 7.52 <sys/sem.h>

The following methods and variables in <sys/sem.h> are not supported:

- semctl()
- semget()
- semop()

## 7.53 <sys/shm.h>

The following methods and variables in <sys/shm.h> are not supported:

- shmat()
- shmctl()
- shmdt()
- shmget()

## 7.54 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- recvmsg()
- send()
- sendmsg()
- sendto()
- setsockopt()
- shutdown()
- socket()
- socketpair()

The following methods and variables in <sys/socket.h> are not supported:

- sockatmark()

## 7.55 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fchmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- mknod()
- stat()
- umask()

## 7.56 <sys/statvfs.h>

The following methods and variables in <sys/statvfs.h> are supported:

- statvfs()

The following methods and variables in <sys/statvfs.h> are not supported:

- fstatvfs()

## 7.57 <sys/time.h>

The following methods and variables in <sys/time.h> are supported:

- gettimeofday()
- times()
- utimes()

The following methods in <sys/time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- getitimer()
- setitimer()

## 7.58 <sys/uio.h>

The following methods and variables in <sys/uio.h> are supported:

- readv()
- writev()

## 7.59 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 7.60 <sys/wait.h>

The following methods and variables in <sys/wait.h> are supported:

- wait()
- waitpid()

The following methods and variables in <sys/wait.h> are not supported:

- waitid()

## 7.61 <syslog.h>

The following methods and variables in <syslog.h> are not supported:

- closelog()
- openlog()
- setlogmask()
- syslog()

## 7.62 <termios.h>

The following methods and variables in <termios.h> are supported:

- cfgetispeed()
- cfgetospeed()
- cfsetispeed()
- cfsetospeed()
- tcdrain()
- tcflow()
- tcflush()
- tcgetattr()
- tcsendbreak()
- tcsetattr()

The following methods and variables in <termios.h> are not supported:

- tcgetsid()

## 7.63 <time.h>

The following methods and variables in <time.h> are supported:

- asctime()
- asctime_r()
- clock()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime()
- ctime_r()
- difftime()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- strptime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- timezone
- tzname
- tzset()

The following methods in <time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- clock_getcpuclockid()

The following methods and variables in <time.h> are not supported:

- daylight
- getdate()

- getdate_err

## 7.64 <trace.h>

The following methods and variables in <trace.h> are not supported:

- posix_trace_attr_destroy()
- posix_trace_attr_getclockres()
- posix_trace_attr_getcreatetime()
- posix_trace_attr_getgenversion()
- posix_trace_attr_getinherited()
- posix_trace_attr_getlogfullpolicy()
- posix_trace_attr_getlogsize()
- posix_trace_attr_getmaxdatasize()
- posix_trace_attr_getmaxsystemeventsize()
- posix_trace_attr_getmaxusereventsize()
- posix_trace_attr_getname()
- posix_trace_attr_getstreamfullpolicy()
- posix_trace_attr_getstreamsize()
- posix_trace_attr_init()
- posix_trace_attr_setinherited()
- posix_trace_attr_setlogfullpolicy()
- posix_trace_attr_setlogsize()
- posix_trace_attr_setmaxdatasize()
- posix_trace_attr_setname()
- posix_trace_attr_setstreamfullpolicy()
- posix_trace_attr_setstreamsize()
- posix_trace_clear()
- posix_trace_close()
- posix_trace_create()
- posix_trace_create_withlog()
- posix_trace_event()
- posix_trace_eventid_equal()
- posix_trace_eventid_get_name()
- posix_trace_eventid_open()
- posix_trace_eventset_add()
- posix_trace_eventset_del()
- posix_trace_eventset_empty()

- posix_trace_eventset_fill()
- posix_trace_eventset_ismember()
- posix_trace_eventtypelist_getnext_id()
- posix_trace_eventtypelist_rewind()
- posix_trace_flush()
- posix_trace_get_attr()
- posix_trace_get_filter()
- posix_trace_get_status()
- posix_trace_getnext_event()
- posix_trace_open()
- posix_trace_rewind()
- posix_trace_set_filter()
- posix_trace_shutdown()
- posix_trace_start()
- posix_trace_stop()
- posix_trace_timedgetnext_event()
- posix_trace_trid_eventid_open()
- posix_trace_trygetnext_event()

## 7.65 <ulimit.h>

The following methods and variables in <ulimit.h> are not supported:

- ulimit()

## 7.66 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- _exit()
- access()
- alarm()
- chdir()
- chown()
- close()
- dup()
- dup2()
- environ
- fchdir()
- fchown()
- fdatasync()
- fpathconf()
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getlogin()
- getlogin_r()
- getopt()
- getpgrp()
- getpid()
- getppid()
- getuid()
- isatty()
- lchown()
- link()
- lseek()

- optarg
- opterr
- optind
- optopt
- pathconf()
- pause()
- pipe()
- pread()
- pwrite()
- read()
- readlink()
- rmdir()
- setegid()
- seteuid()
- setgid()
- setpgid()
- setsid()
- setuid()
- sleep()
- swab()
- symlink()
- sync()
- sysconf()
- tcgetpgrp()
- tcsetpgrp()
- truncate()
- ttyname()
- ttyname_r()
- ualarm()
- unlink()
- usleep()
- write()

The following methods in <unistd.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- execl()

- execle()
- execlp()
- execv()
- execve()
- execvp()
- fork()

The following methods and variables in <unistd.h> are not supported:

- confstr()
- crypt()
- encrypt()
- gethostid()
- getpgid()
- getsid()
- lockf()
- nice()
- setpgrp()
- setregid()
- setreuid()

## 7.67 <utime.h>

The following methods and variables in <utime.h> are supported:

- utime()

## 7.68 <utmpx.h>

The following methods and variables in <utmpx.h> are not supported:

- endutxent()
- getutxent()
- getutxid()
- getutxline()
- pututxline()
- setutxent()

## 7.69 <wchar.h>

The following methods and variables in <wchar.h> are supported:

- btowc()
- fgetwc()
- fgetws()
- fputwc()
- fputws()
- fwide()
- fwprintf()
- fwscanf()
- getwc()
- getwchar()
- mbrlen()
- mbrtowc()
- mbsinit()
- mbsrtowcs()
- putwc()
- putwchar()
- swprintf()
- swscanf()
- ungetwc()
- vfwprintf()
- vfwscanf()
- vswprintf()
- vswscanf()
- vwprintf()
- vwscanf()
- wcrtomb()
- wcscat()
- wcschr()
- wcscmp()
- wcscoll()
- wcscpy()
- wcscspn()

- wcsftime()
- wcslen()
- wcsncat()
- wcsncmp()
- wcsncpy()
- wcsnlen()
- wcsnrtombs()
- wcspbrk()
- wcsrchr()
- wcsrtombs()
- wcsspn()
- wcsstr()
- wcstod()
- wcstof()
- wcstok()
- wcstol()
- wcstold()
- wcstoll()
- wcstoul()
- wcstoull()
- wcswidth()
- wcsxfrm()
- wctob()
- wcwidth()
- wmemchr()
- wmemcmp()
- wmemcpy()
- wmemmove()
- wmemset()
- wprintf()
- wscanf()

## 7.70 <wctype.h>

The following methods and variables in <wctype.h> are supported:

- iswalnum()
- iswalpha()
- iswblank()
- iswcntrl()
- iswctype()
- iswdigit()
- iswgraph()
- iswlower()
- iswprint()
- iswpunct()
- iswspace()
- iswupper()
- iswxdigit()
- towctrans()
- towlower()
- towupper()
- wctrans()
- wctype()

## 7.71 <wordexp.h>

The following methods and variables in <wordexp.h> are not supported:

- wordexp()
- wordfree()

CHAPTER

**EIGHT**

# POSIX PSE51 - MINIMAL

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 8.1 Summary

The follow table summarizes alignment with the POSIX PSE51 - Minimal standard:

| | |
|---|---|
| Supported | 282 |
| ENOSYS | 2 |
| Not supported | 1 |

## 8.2 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 8.3 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 8.4 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- open()

## 8.5 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 8.6 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()

## 8.7 <locale.h>

The following methods and variables in <locale.h> are supported:

- localeconv()
- setlocale()

## 8.8 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstackaddr()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstackaddr()
- pthread_attr_setstacksize()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_init()

- pthread_condattr_setclock()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getconcurrency()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_mutexattr_settype()
- pthread_once()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setconcurrency()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()

- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

## 8.9 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()

## 8.10 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 8.11 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()

## 8.12 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 8.13 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 8.14 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 8.15 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgets()
- fileno()
- flockfile()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- ftrylockfile()
- funlockfile()
- fwrite()
- getc()
- getc_unlocked()
- getchar()
- getchar_unlocked()
- gets()
- perror()
- printf()
- putc()
- putc_unlocked()
- putchar()
- putchar_unlocked()
- puts()

- scanf()
- setbuf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- ungetc()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

## 8.16 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abort()
- abs()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- free()
- getenv()
- labs()
- ldiv()
- llabs()
- lldiv()
- malloc()
- mktime()
- qsort()
- rand()
- rand_r()
- realloc()
- setenv()
- srand()
- strtod()
- strtof()
- strtol()
- strtold()
- strtoll()
- strtoul()
- strtoull()
- unsetenv()

## 8.17 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcpy()
- strcspn()
- strerror()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strtok_r()
- strxfrm()

## 8.18 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlock()
- mlockall()
- mmap()
- munlock()
- munmap()
- shm_open()
- shm_unlink()

## 8.19 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 8.20 <time.h>

The following methods and variables in <time.h> are supported:

- asctime()
- asctime_r()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime()
- ctime_r()
- difftime()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

## 8.21 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- alarm()
- close()
- environ
- fdatasync()
- fsync()
- pause()
- read()
- sysconf()
- write()

The following methods and variables in <unistd.h> are not supported:

- confstr()

CHAPTER

**NINE**

# POSIX PSE52 - REAL-TIME CONTROLLER

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 9.1 Summary

The follow table summarizes alignment with the POSIX PSE52 - Real-Time Controller standard:

| | |
|---|---|
| Supported | 575 |
| ENOSYS | 2 |
| Not supported | 52 |

## 9.2 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 9.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 9.4 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 9.5 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 9.6 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

## 9.7 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 9.8 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()

## 9.9 <locale.h>

The following methods and variables in <locale.h> are supported:

- localeconv()
- setlocale()

## 9.10 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()
- sqrt()

- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- signbit()

## 9.11 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 9.12 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstackaddr()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstackaddr()
- pthread_attr_setstacksize()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_init()

- pthread_condattr_setclock()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getconcurrency()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_mutexattr_settype()
- pthread_once()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setconcurrency()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()

- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

## 9.13 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()

## 9.14 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 9.15 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()

## 9.16 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 9.17 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 9.18 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 9.19 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fileno()
- flockfile()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- fsetpos()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- getc()
- getc_unlocked()
- getchar()
- getchar_unlocked()
- gets()
- perror()

- printf()
- putc()
- putc_unlocked()
- putchar()
- putchar_unlocked()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setbuf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tmpfile()
- tmpnam()
- ungetc()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

## 9.20 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abort()
- abs()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- free()
- getenv()
- labs()
- ldiv()
- llabs()
- lldiv()
- malloc()
- mktime()
- qsort()
- rand()
- rand_r()
- realloc()
- setenv()
- srand()
- strtod()
- strtof()
- strtol()
- strtold()
- strtoll()
- strtoul()
- strtoull()
- unsetenv()

## 9.21 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcpy()
- strcspn()
- strerror()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strtok_r()
- strxfrm()

## 9.22 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlock()
- mlockall()
- mmap()
- msync()
- munlock()
- munmap()
- shm_open()
- shm_unlink()

## 9.23 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- fstat()
- mkdir()
- stat()

## 9.24 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 9.25 <time.h>

The following methods and variables in <time.h> are supported:

- asctime()
- asctime_r()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime()
- ctime_r()
- difftime()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

## 9.26 <trace.h>

The following methods and variables in <trace.h> are not supported:

- posix_trace_attr_destroy()
- posix_trace_attr_getclockres()
- posix_trace_attr_getcreatetime()
- posix_trace_attr_getgenversion()
- posix_trace_attr_getinherited()
- posix_trace_attr_getlogfullpolicy()
- posix_trace_attr_getlogsize()
- posix_trace_attr_getmaxdatasize()
- posix_trace_attr_getmaxsystemeventsize()
- posix_trace_attr_getmaxusereventsize()
- posix_trace_attr_getname()
- posix_trace_attr_getstreamfullpolicy()
- posix_trace_attr_getstreamsize()
- posix_trace_attr_init()
- posix_trace_attr_setinherited()
- posix_trace_attr_setlogfullpolicy()
- posix_trace_attr_setlogsize()
- posix_trace_attr_setmaxdatasize()
- posix_trace_attr_setname()
- posix_trace_attr_setstreamfullpolicy()
- posix_trace_attr_setstreamsize()
- posix_trace_clear()
- posix_trace_close()
- posix_trace_create()
- posix_trace_create_withlog()
- posix_trace_event()
- posix_trace_eventid_equal()
- posix_trace_eventid_get_name()
- posix_trace_eventid_open()
- posix_trace_eventset_add()
- posix_trace_eventset_del()
- posix_trace_eventset_empty()

- posix_trace_eventset_fill()
- posix_trace_eventset_ismember()
- posix_trace_eventtypelist_getnext_id()
- posix_trace_eventtypelist_rewind()
- posix_trace_flush()
- posix_trace_get_attr()
- posix_trace_get_filter()
- posix_trace_get_status()
- posix_trace_getnext_event()
- posix_trace_open()
- posix_trace_rewind()
- posix_trace_set_filter()
- posix_trace_shutdown()
- posix_trace_start()
- posix_trace_stop()
- posix_trace_timedgetnext_event()
- posix_trace_trid_eventid_open()
- posix_trace_trygetnext_event()

## 9.27 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- access()
- alarm()
- chdir()
- close()
- dup()
- dup2()
- environ
- fdatasync()
- fpathconf()
- fsync()
- ftruncate()
- getcwd()
- link()
- lseek()
- pathconf()
- pause()
- read()
- rmdir()
- sysconf()
- unlink()
- write()

The following methods and variables in <unistd.h> are not supported:

- confstr()

## 9.28 <utime.h>

The following methods and variables in <utime.h> are supported:

- utime()

CHAPTER

**TEN**

# POSIX PSE53 - DEDICATED

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 10.1 Summary

The follow table summarizes alignment with the POSIX PSE53 - Dedicated standard:

| | |
|---|---|
| Supported | 661 |
| ENOSYS | 15 |
| Not supported | 75 |

## 10.2 <aio.h>

The following methods and variables in <aio.h> are supported:

- aio_cancel()
- aio_error()
- aio_fsync()
- aio_read()
- aio_return()
- aio_write()
- lio_listio()

The following methods in <aio.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- aio_suspend()

## 10.3 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_addr()
- inet_ntoa()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 10.4 <assert.h>

The following methods and variables in <assert.h> are supported:

- assert()

## 10.5 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 10.6 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 10.7 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 10.8 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 10.9 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

## 10.10 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 10.11 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()

## 10.12 <locale.h>

The following methods and variables in <locale.h> are supported:

- localeconv()
- setlocale()

## 10.13 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()
- sqrt()

- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- signbit()

## 10.14 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 10.15 <net/if.h>

The following methods and variables in <net/if.h> are supported:

- if_freenameindex()
- if_indextoname()
- if_nameindex()
- if_nametoindex()

## 10.16 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- endhostent()
- endnetent()
- endprotoent()
- endservent()
- freeaddrinfo()
- gai_strerror()
- getaddrinfo()
- gethostent()
- getnameinfo()
- getnetbyaddr()
- getnetbyname()
- getnetent()
- getprotobyname()
- getprotobynumber()
- getprotoent()
- getservbyname()
- getservbyport()
- getservent()
- sethostent()
- setnetent()
- setprotoent()
- setservent()

## 10.17 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstackaddr()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstackaddr()
- pthread_attr_setstacksize()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_getpshared()

- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_condattr_setpshared()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getconcurrency()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_getpshared()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_mutexattr_setpshared()
- pthread_mutexattr_settype()
- pthread_once()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()

- pthread_setconcurrency()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

## 10.18 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

The following methods in <sched.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- sched_getparam()
- sched_getscheduler()
- sched_setparam()
- sched_setscheduler()

## 10.19 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 10.20 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()
- siglongjmp()
- sigsetjmp()

## 10.21 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 10.22 <spawn.h>

The following methods and variables in <spawn.h> are not supported:

- posix_spawn()
- posix_spawn_file_actions_addclose()
- posix_spawn_file_actions_adddup2()
- posix_spawn_file_actions_addopen()
- posix_spawn_file_actions_destroy()
- posix_spawn_file_actions_init()
- posix_spawnattr_destroy()
- posix_spawnattr_getflags()
- posix_spawnattr_getpgroup()
- posix_spawnattr_getschedparam()
- posix_spawnattr_getschedpolicy()
- posix_spawnattr_getsigdefault()
- posix_spawnattr_getsigmask()
- posix_spawnattr_init()
- posix_spawnattr_setflags()
- posix_spawnattr_setpgroup()
- posix_spawnattr_setschedparam()
- posix_spawnattr_setschedpolicy()
- posix_spawnattr_setsigdefault()
- posix_spawnattr_setsigmask()
- posix_spawnp()

## 10.23 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 10.24 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 10.25 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fileno()
- flockfile()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- fsetpos()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- getc()
- getc_unlocked()
- getchar()
- getchar_unlocked()
- gets()
- perror()

- printf()
- putc()
- putc_unlocked()
- putchar()
- putchar_unlocked()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setbuf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tmpfile()
- tmpnam()
- ungetc()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

## 10.26 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- _Exit()
- abort()
- abs()
- atexit()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- exit()
- free()
- getenv()
- labs()
- ldiv()
- llabs()
- lldiv()
- malloc()
- mktime()
- qsort()
- rand()
- rand_r()
- realloc()
- setenv()
- srand()
- strtod()
- strtof()
- strtol()
- strtold()
- strtoll()
- strtoul()

- strtoull()
- unsetenv()

## 10.27 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcpy()
- strcspn()
- strerror()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strtok_r()
- strxfrm()

## 10.28 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlock()
- mlockall()
- mmap()
- mprotect()
- msync()
- munlock()
- munmap()
- shm_open()
- shm_unlink()

## 10.29 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

The following methods and variables in <sys/select.h> are not supported:

- pselect()

## 10.30 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- recvmsg()
- send()
- sendmsg()
- sendto()
- setsockopt()
- shutdown()
- socket()
- socketpair()

The following methods and variables in <sys/socket.h> are not supported:

- sockatmark()

## 10.31 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- fstat()
- mkdir()
- stat()

## 10.32 <sys/time.h>

The following methods and variables in <sys/time.h> are supported:

- times()
- utimes()

## 10.33 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 10.34 <sys/wait.h>

The following methods and variables in <sys/wait.h> are supported:

- wait()

## 10.35 <time.h>

The following methods and variables in <time.h> are supported:

- asctime()
- asctime_r()
- clock()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime()
- ctime_r()
- difftime()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

The following methods in <time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- clock_getcpuclockid()

## 10.36 <trace.h>

The following methods and variables in <trace.h> are not supported:

- posix_trace_attr_destroy()
- posix_trace_attr_getclockres()
- posix_trace_attr_getcreatetime()
- posix_trace_attr_getgenversion()
- posix_trace_attr_getinherited()
- posix_trace_attr_getlogfullpolicy()
- posix_trace_attr_getlogsize()
- posix_trace_attr_getmaxdatasize()
- posix_trace_attr_getmaxsystemeventsize()
- posix_trace_attr_getmaxuserеventsize()
- posix_trace_attr_getname()
- posix_trace_attr_getstreamfullpolicy()
- posix_trace_attr_getstreamsize()
- posix_trace_attr_init()
- posix_trace_attr_setinherited()
- posix_trace_attr_setlogfullpolicy()
- posix_trace_attr_setlogsize()
- posix_trace_attr_setmaxdatasize()
- posix_trace_attr_setname()
- posix_trace_attr_setstreamfullpolicy()
- posix_trace_attr_setstreamsize()
- posix_trace_clear()
- posix_trace_close()
- posix_trace_create()
- posix_trace_create_withlog()
- posix_trace_event()
- posix_trace_eventid_equal()
- posix_trace_eventid_get_name()
- posix_trace_eventid_open()
- posix_trace_eventset_add()
- posix_trace_eventset_del()
- posix_trace_eventset_empty()

- posix_trace_eventset_fill()
- posix_trace_eventset_ismember()
- posix_trace_eventtypelist_getnext_id()
- posix_trace_eventtypelist_rewind()
- posix_trace_flush()
- posix_trace_get_attr()
- posix_trace_get_filter()
- posix_trace_get_status()
- posix_trace_getnext_event()
- posix_trace_open()
- posix_trace_rewind()
- posix_trace_set_filter()
- posix_trace_shutdown()
- posix_trace_start()
- posix_trace_stop()
- posix_trace_timedgetnext_event()
- posix_trace_trid_eventid_open()
- posix_trace_trygetnext_event()

## 10.37 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- _exit()
- access()
- alarm()
- chdir()
- close()
- dup()
- dup2()
- environ
- fdatasync()
- fpathconf()
- fsync()
- ftruncate()
- getcwd()
- gethostname()
- getpgrp()
- getpid()
- getppid()
- link()
- lseek()
- pathconf()
- pause()
- pipe()
- read()
- rmdir()
- sleep()
- sysconf()
- unlink()
- write()

The following methods in <unistd.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- execl()
- execle()

- `execlp()`
- `execv()`
- `execve()`
- `execvp()`
- `fork()`

The following methods and variables in `<unistd.h>` are not supported:

- `confstr()`

## 10.38 <utime.h>

The following methods and variables in <utime.h> are supported:

- utime()

CHAPTER

**ELEVEN**

# POSIX PSE54 - MULTIPURPOSE

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 11.1 Summary

The follow table summarizes alignment with the POSIX PSE54 - Multipurpose standard:

| | |
|---|---|
| Supported | 805 |
| ENOSYS | 16 |
| Not supported | 85 |

## 11.2 <aio.h>

The following methods and variables in <aio.h> are supported:

- aio_cancel()
- aio_error()
- aio_fsync()
- aio_read()
- aio_return()
- aio_write()
- lio_listio()

The following methods in <aio.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- aio_suspend()

## 11.3 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_addr()
- inet_ntoa()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 11.4 <assert.h>

The following methods and variables in <assert.h> are supported:

- assert()

## 11.5 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 11.6 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 11.7 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 11.8 <dlfcn.h>

The following methods and variables in <dlfcn.h> are supported:

- dlclose()
- dlerror()
- dlopen()
- dlsym()

## 11.9 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 11.10 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

The following methods and variables in <fcntl.h> are not supported:

- posix_fadvise()
- posix_fallocate()

## 11.11 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 11.12 <fnmatch.h>

The following methods and variables in <fnmatch.h> are supported:

- fnmatch()

## 11.13 <glob.h>

The following methods and variables in <glob.h> are supported:

- glob()
- globfree()

## 11.14 <grp.h>

The following methods and variables in <grp.h> are supported:

- getgrgid()
- getgrgid_r()
- getgrnam()
- getgrnam_r()

## 11.15 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()
- wcstoimax()
- wcstoumax()

## 11.16 <locale.h>

The following methods and variables in <locale.h> are supported:

- localeconv()
- setlocale()

## 11.17 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()
- sqrt()

- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- signbit()

## 11.18 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 11.19 <net/if.h>

The following methods and variables in <net/if.h> are supported:

- if_freenameindex()
- if_indextoname()
- if_nameindex()
- if_nametoindex()

## 11.20 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- endhostent()
- endnetent()
- endprotoent()
- endservent()
- freeaddrinfo()
- gai_strerror()
- getaddrinfo()
- gethostent()
- getnameinfo()
- getnetbyaddr()
- getnetbyname()
- getnetent()
- getprotobyname()
- getprotobynumber()
- getprotoent()
- getservbyname()
- getservbyport()
- getservent()
- sethostent()
- setnetent()
- setprotoent()
- setservent()

## 11.21 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstackaddr()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstackaddr()
- pthread_attr_setstacksize()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_getpshared()

- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_condattr_setpshared()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getconcurrency()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_getpshared()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_mutexattr_setpshared()
- pthread_mutexattr_settype()
- pthread_once()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()

- pthread_setconcurrency()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

## 11.22 <pwd.h>

The following methods and variables in <pwd.h> are supported:

- getpwnam()
- getpwnam_r()
- getpwuid()
- getpwuid_r()

## 11.23 <regex.h>

The following methods and variables in <regex.h> are supported:

- regcomp()
- regerror()
- regexec()
- regfree()

## 11.24 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

The following methods in <sched.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- sched_getparam()
- sched_getscheduler()
- sched_setparam()
- sched_setscheduler()

## 11.25 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 11.26 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()
- siglongjmp()
- sigsetjmp()

## 11.27 <signal.h>

The following methods and variables in <signal.h> are supported:

- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 11.28 <spawn.h>

The following methods and variables in <spawn.h> are not supported:

- posix_spawn()
- posix_spawn_file_actions_addclose()
- posix_spawn_file_actions_adddup2()
- posix_spawn_file_actions_addopen()
- posix_spawn_file_actions_destroy()
- posix_spawn_file_actions_init()
- posix_spawnattr_destroy()
- posix_spawnattr_getflags()
- posix_spawnattr_getpgroup()
- posix_spawnattr_getschedparam()
- posix_spawnattr_getschedpolicy()
- posix_spawnattr_getsigdefault()
- posix_spawnattr_getsigmask()
- posix_spawnattr_init()
- posix_spawnattr_setflags()
- posix_spawnattr_setpgroup()
- posix_spawnattr_setschedparam()
- posix_spawnattr_setschedpolicy()
- posix_spawnattr_setsigdefault()
- posix_spawnattr_setsigmask()
- posix_spawnp()

## 11.29 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 11.30 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 11.31 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- ctermid()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fileno()
- flockfile()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- fsetpos()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- getc()
- getc_unlocked()
- getchar()
- getchar_unlocked()
- gets()

- perror()
- printf()
- putc()
- putc_unlocked()
- putchar()
- putchar_unlocked()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setbuf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tmpfile()
- tmpnam()
- ungetc()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

The following methods and variables in <stdio.h> are not supported:

- pclose()
- popen()

## 11.32 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- _Exit()
- abort()
- abs()
- atexit()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- exit()
- free()
- getenv()
- labs()
- ldiv()
- llabs()
- lldiv()
- malloc()
- mblen()
- mbstowcs()
- mbtowc()
- mktime()
- posix_memalign()
- qsort()
- rand()
- rand_r()
- realloc()
- setenv()
- srand()
- strtod()
- strtof()

- strtol()
- strtold()
- strtoll()
- strtoul()
- strtoull()
- unsetenv()
- wcstombs()
- wctomb()

The following methods in <stdlib.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- system()

## 11.33 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcpy()
- strcspn()
- strerror()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strtok_r()
- strxfrm()

## 11.34 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlock()
- mlockall()
- mmap()
- mprotect()
- msync()
- munlock()
- munmap()
- posix_madvise()
- shm_open()
- shm_unlink()

## 11.35 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

The following methods and variables in <sys/select.h> are not supported:

- pselect()

## 11.36 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- recvmsg()
- send()
- sendmsg()
- sendto()
- setsockopt()
- shutdown()
- socket()
- socketpair()

The following methods and variables in <sys/socket.h> are not supported:

- sockatmark()

## 11.37 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fchmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- stat()
- umask()

## 11.38 <sys/time.h>

The following methods and variables in <sys/time.h> are supported:

- times()
- utimes()

## 11.39 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 11.40 <sys/wait.h>

The following methods and variables in <sys/wait.h> are supported:

- wait()

## 11.41 <syslog.h>

The following methods and variables in <syslog.h> are not supported:

- closelog()
- openlog()
- setlogmask()
- syslog()

## 11.42 <termios.h>

The following methods and variables in <termios.h> are supported:

- cfgetispeed()
- cfgetospeed()
- cfsetispeed()
- cfsetospeed()
- tcdrain()
- tcflow()
- tcflush()
- tcgetattr()
- tcsendbreak()
- tcsetattr()

## 11.43 <time.h>

The following methods and variables in <time.h> are supported:

- asctime()
- asctime_r()
- clock()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime()
- ctime_r()
- difftime()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

The following methods in <time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- clock_getcpuclockid()

## 11.44 <trace.h>

The following methods and variables in <trace.h> are not supported:

- posix_trace_attr_destroy()
- posix_trace_attr_getclockres()
- posix_trace_attr_getcreatetime()
- posix_trace_attr_getgenversion()
- posix_trace_attr_getinherited()
- posix_trace_attr_getlogfullpolicy()
- posix_trace_attr_getlogsize()
- posix_trace_attr_getmaxdatasize()
- posix_trace_attr_getmaxsystemeventsize()
- posix_trace_attr_getmaxusereventsize()
- posix_trace_attr_getname()
- posix_trace_attr_getstreamfullpolicy()
- posix_trace_attr_getstreamsize()
- posix_trace_attr_init()
- posix_trace_attr_setinherited()
- posix_trace_attr_setlogfullpolicy()
- posix_trace_attr_setlogsize()
- posix_trace_attr_setmaxdatasize()
- posix_trace_attr_setname()
- posix_trace_attr_setstreamfullpolicy()
- posix_trace_attr_setstreamsize()
- posix_trace_clear()
- posix_trace_close()
- posix_trace_create()
- posix_trace_create_withlog()
- posix_trace_event()
- posix_trace_eventid_equal()
- posix_trace_eventid_get_name()
- posix_trace_eventid_open()
- posix_trace_eventset_add()
- posix_trace_eventset_del()
- posix_trace_eventset_empty()

- posix_trace_eventset_fill()
- posix_trace_eventset_ismember()
- posix_trace_eventtypelist_getnext_id()
- posix_trace_eventtypelist_rewind()
- posix_trace_flush()
- posix_trace_get_attr()
- posix_trace_get_filter()
- posix_trace_get_status()
- posix_trace_getnext_event()
- posix_trace_open()
- posix_trace_rewind()
- posix_trace_set_filter()
- posix_trace_shutdown()
- posix_trace_start()
- posix_trace_stop()
- posix_trace_timedgetnext_event()
- posix_trace_trid_eventid_open()
- posix_trace_trygetnext_event()

## 11.45 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- _exit()
- access()
- chdir()
- chown()
- close()
- dup()
- dup2()
- environ
- fchown()
- fdatasync()
- fpathconf()
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getlogin()
- getlogin_r()
- getopt()
- getpgrp()
- getpid()
- getppid()
- getuid()
- isatty()
- link()
- lseek()
- optarg
- opterr
- optind

- optopt
- pathconf()
- pipe()
- read()
- readlink()
- rmdir()
- setegid()
- seteuid()
- setgid()
- setpgid()
- setuid()
- sleep()
- symlink()
- sysconf()
- tcgetpgrp()
- tcsetpgrp()
- ttyname()
- ttyname_r()
- unlink()
- write()

The following methods in <unistd.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- execl()
- execle()
- execlp()
- execv()
- execve()
- execvp()
- fork()

The following methods and variables in <unistd.h> are not supported:

- confstr()

## 11.46 <utime.h>

The following methods and variables in <utime.h> are supported:

- utime()

## 11.47 <wchar.h>

The following methods and variables in <wchar.h> are supported:

- btowc()
- fgetwc()
- fgetws()
- fputwc()
- fputws()
- fwide()
- fwprintf()
- fwscanf()
- getwc()
- getwchar()
- mbrlen()
- mbrtowc()
- mbsinit()
- mbsrtowcs()
- putwc()
- putwchar()
- swprintf()
- swscanf()
- ungetwc()
- vfwprintf()
- vfwscanf()
- vswprintf()
- vswscanf()
- vwprintf()
- vwscanf()
- wcrtomb()
- wcscat()
- wcschr()
- wcscmp()
- wcscoll()
- wcscpy()
- wcscspn()

- wcsftime()
- wcslen()
- wcsncat()
- wcsncmp()
- wcsncpy()
- wcspbrk()
- wcsrchr()
- wcsrtombs()
- wcsspn()
- wcsstr()
- wcstod()
- wcstof()
- wcstok()
- wcstol()
- wcstold()
- wcstoll()
- wcstoul()
- wcstoull()
- wcsxfrm()
- wctob()
- wmemchr()
- wmemcmp()
- wmemcpy()
- wmemmove()
- wmemset()
- wprintf()
- wscanf()

## 11.48 <wctype.h>

The following methods and variables in <wctype.h> are supported:

- iswalnum()
- iswalpha()
- iswblank()
- iswcntrl()
- iswctype()
- iswdigit()
- iswgraph()
- iswlower()
- iswprint()
- iswpunct()
- iswspace()
- iswupper()
- iswxdigit()
- towctrans()
- towlower()
- towupper()
- wctrans()
- wctype()

## 11.49 <wordexp.h>

The following methods and variables in <wordexp.h> are not supported:

- wordexp()
- wordfree()

CHAPTER

**TWELVE**

# C99 STANDARD LIBRARY

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 12.1 Summary

The follow table summarizes alignment with the C99 Standard Library standard:

| | |
|---|---|
| Supported | 488 |
| ENOSYS | 0 |
| Not supported | 1 |

## 12.2 <assert.h>

The following methods and variables in <assert.h> are supported:

- assert()

## 12.3 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 12.4 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 12.5 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 12.6 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 12.7 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()
- wcstoimax()
- wcstoumax()

## 12.8 <locale.h>

The following methods and variables in <locale.h> are supported:

- localeconv()
- setlocale()

## 12.9 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()
- sqrt()

- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- signbit()

## 12.10 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()

## 12.11 <signal.h>

The following methods and variables in <signal.h> are supported:

- raise()
- signal()

## 12.12 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 12.13 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 12.14 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 12.15 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fileno()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fsetpos()
- ftell()
- fwrite()
- getc()
- getchar()
- gets()
- perror()
- printf()
- putc()
- putchar()
- puts()
- remove()
- rename()
- rewind()
- scanf()

- setbuf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tmpfile()
- tmpnam()
- ungetc()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

## 12.16 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- _Exit()
- abs()
- atexit()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- exit()
- free()
- getenv()
- labs()
- ldiv()
- llabs()
- lldiv()
- malloc()
- mblen()
- mbstowcs()
- mbtowc()
- mktime()
- qsort()
- rand()
- realloc()
- srand()
- strtod()
- strtof()
- strtol()
- strtold()
- strtoll()
- strtoul()

- strtoull()
- wcstombs()
- wctomb()

## 12.17 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcpy()
- strcspn()
- strerror()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strxfrm()

## 12.18 <time.h>

The following methods and variables in <time.h> are supported:

- asctime()
- clock()
- ctime()
- difftime()
- gmtime()
- localtime()
- strftime()
- time()

## 12.19 <wchar.h>

The following methods and variables in <wchar.h> are supported:

- btowc()
- fgetwc()
- fgetws()
- fputwc()
- fputws()
- fwide()
- fwprintf()
- fwscanf()
- getwc()
- getwchar()
- mbrlen()
- mbrtowc()
- mbsinit()
- mbsrtowcs()
- putwc()
- putwchar()
- swprintf()
- swscanf()
- ungetwc()
- vfwprintf()
- vfwscanf()
- vswprintf()
- vswscanf()
- vwprintf()
- vwscanf()
- wcrtomb()
- wcscat()
- wcschr()
- wcscmp()
- wcscoll()
- wcscpy()
- wcscspn()

- wcsftime()
- wcslen()
- wcsncat()
- wcsncmp()
- wcsncpy()
- wcspbrk()
- wcsrchr()
- wcsrtombs()
- wcsspn()
- wcsstr()
- wcstod()
- wcstof()
- wcstok()
- wcstol()
- wcstold()
- wcstoll()
- wcstoul()
- wcstoull()
- wcsxfrm()
- wctob()
- wmemchr()
- wmemcmp()
- wmemcpy()
- wmemmove()
- wmemset()
- wprintf()
- wscanf()

## 12.20 <wctype.h>

The following methods and variables in <wctype.h> are supported:

- iswalnum()
- iswalpha()
- iswblank()
- iswcntrl()
- iswctype()
- iswdigit()
- iswgraph()
- iswlower()
- iswprint()
- iswpunct()
- iswspace()
- iswupper()
- iswxdigit()
- towctrans()
- towlower()
- towupper()
- wctrans()
- wctype()

CHAPTER

**THIRTEEN**

# C11 STANDARD LIBRARY

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 13.1 Summary

The follow table summarizes alignment with the C11 Standard Library standard:

| | |
|---|---|
| Supported | 534 |
| ENOSYS | 0 |
| Not supported | 1 |

## 13.2 <assert.h>

The following methods and variables in <assert.h> are supported:

- assert()

## 13.3 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 13.4 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 13.5 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 13.6 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 13.7 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()
- wcstoimax()
- wcstoumax()

## 13.8 <locale.h>

The following methods and variables in <locale.h> are supported:

- localeconv()
- setlocale()

## 13.9 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()
- sqrt()

- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- signbit()

## 13.10 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()

## 13.11 <signal.h>

The following methods and variables in <signal.h> are supported:

- raise()
- signal()

## 13.12 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 13.13 <stdatomic.h>

The following methods and variables in <stdatomic.h> are supported:

- ATOMIC_VAR_INIT()
- atomic_compare_exchange_strong()
- atomic_compare_exchange_strong_explicit()
- atomic_compare_exchange_weak()
- atomic_compare_exchange_weak_explicit()
- atomic_exchange()
- atomic_exchange_explicit()
- atomic_fetch_key()
- atomic_fetch_key_explicit()
- atomic_flag_clear()
- atomic_flag_clear_explicit()
- atomic_flag_test_and_set()
- atomic_flag_test_and_set_explicit()
- atomic_init()
- atomic_is_lock_free()
- atomic_load()
- atomic_load_explicit()
- atomic_signal_fence()
- atomic_store()
- atomic_store_explicit()
- atomic_thread_fence()

## 13.14 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 13.15 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 13.16 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fsetpos()
- ftell()
- fwrite()
- getc()
- getchar()
- perror()
- printf()
- putc()
- putchar()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setbuf()
- setvbuf()

- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tmpfile()
- tmpnam()
- ungetc()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

## 13.17 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- _Exit()
- abs()
- aligned_alloc()
- atexit()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- exit()
- free()
- getenv()
- labs()
- ldiv()
- llabs()
- lldiv()
- malloc()
- mblen()
- mbstowcs()
- mbtowc()
- mktime()
- qsort()
- quick_exit()
- rand()
- realloc()
- srand()
- strtod()
- strtof()
- strtol()
- strtold()

- strtoll()
- strtoul()
- strtoull()
- wcstombs()
- wctomb()

## 13.18 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcpy()
- strcspn()
- strerror()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strxfrm()

## 13.19 <threads.h>

The following methods and variables in <threads.h> are supported:

- call_once()
- cnd_broadcast()
- cnd_destroy()
- cnd_init()
- cnd_signal()
- cnd_timedwait()
- cnd_wait()
- mtx_destroy()
- mtx_init()
- mtx_lock()
- mtx_timedlock()
- mtx_trylock()
- mtx_unlock()
- thrd_create()
- thrd_current()
- thrd_detach()
- thrd_equal()
- thrd_exit()
- thrd_join()
- thrd_sleep()
- thrd_yield()
- tss_create()
- tss_delete()
- tss_get()
- tss_set()

## 13.20 <time.h>

The following methods and variables in <time.h> are supported:

- asctime()
- clock()
- ctime()
- difftime()
- gmtime()
- localtime()
- strftime()
- time()

## 13.21 <wchar.h>

The following methods and variables in <wchar.h> are supported:

- btowc()
- fgetwc()
- fgetws()
- fputwc()
- fputws()
- fwide()
- fwprintf()
- fwscanf()
- getwc()
- getwchar()
- mbrlen()
- mbrtowc()
- mbsinit()
- mbsrtowcs()
- putwc()
- putwchar()
- swprintf()
- swscanf()
- ungetwc()
- vfwprintf()
- vfwscanf()
- vswprintf()
- vswscanf()
- vwprintf()
- vwscanf()
- wcrtomb()
- wcscat()
- wcschr()
- wcscmp()
- wcscoll()
- wcscpy()
- wcscspn()

- wcsftime()
- wcslen()
- wcsncat()
- wcsncmp()
- wcsncpy()
- wcspbrk()
- wcsrchr()
- wcsrtombs()
- wcsspn()
- wcsstr()
- wcstod()
- wcstof()
- wcstok()
- wcstol()
- wcstold()
- wcstoll()
- wcstoul()
- wcstoull()
- wcsxfrm()
- wctob()
- wmemchr()
- wmemcmp()
- wmemcpy()
- wmemmove()
- wmemset()
- wprintf()
- wscanf()

## 13.22 <wctype.h>

The following methods and variables in <wctype.h> are supported:

- iswalnum()
- iswalpha()
- iswblank()
- iswcntrl()
- iswctype()
- iswdigit()
- iswgraph()
- iswlower()
- iswprint()
- iswpunct()
- iswspace()
- iswupper()
- iswxdigit()
- towctrans()
- towlower()
- towupper()
- wctrans()
- wctype()

CHAPTER

**FOURTEEN**

# C17 STANDARD LIBRARY

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 14.1 Summary

The follow table summarizes alignment with the C17 Standard Library standard:

| | |
|---|---|
| Supported | 526 |
| ENOSYS | 1 |
| Not supported | 1 |

## 14.2 <assert.h>

The following methods and variables in <assert.h> are supported:

- assert()

## 14.3 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 14.4 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 14.5 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 14.6 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 14.7 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()
- wcstoimax()
- wcstoumax()

## 14.8 <locale.h>

The following methods and variables in <locale.h> are supported:

- localeconv()
- setlocale()

## 14.9 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()
- sqrt()

- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- signbit()

## 14.10 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()

## 14.11 <signal.h>

The following methods and variables in <signal.h> are supported:

- raise()
- signal()

## 14.12 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 14.13 <stdatomic.h>

The following methods and variables in <stdatomic.h> are supported:

- ATOMIC_VAR_INIT()
- atomic_compare_exchange_strong()
- atomic_compare_exchange_strong_explicit()
- atomic_compare_exchange_weak()
- atomic_compare_exchange_weak_explicit()
- atomic_exchange()
- atomic_exchange_explicit()
- atomic_fetch_key()
- atomic_fetch_key_explicit()
- atomic_flag_clear()
- atomic_flag_clear_explicit()
- atomic_flag_test_and_set()
- atomic_flag_test_and_set_explicit()
- atomic_init()
- atomic_is_lock_free()
- atomic_load()
- atomic_load_explicit()
- atomic_signal_fence()
- atomic_store()
- atomic_store_explicit()
- atomic_thread_fence()

## 14.14 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 14.15 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fsetpos()
- ftell()
- fwrite()
- getc()
- getchar()
- perror()
- printf()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setbuf()
- setvbuf()
- snprintf()
- sprintf()

- sscanf()
- tmpfile()
- tmpnam()
- ungetc()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

## 14.16 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- _Exit()
- abort()
- abs()
- aligned_alloc()
- atexit()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- exit()
- free()
- getenv()
- labs()
- ldiv()
- llabs()
- lldiv()
- malloc()
- mblen()
- mbstowcs()
- mbtowc()
- mktime()
- qsort()
- quick_exit()
- rand()
- realloc()
- srand()
- strtod()
- strtof()
- strtol()

- strtold()
- strtoll()
- strtoul()
- strtoull()
- wcstombs()
- wctomb()

The following methods in <stdlib.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- system()

## 14.17 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcpy()
- strcspn()
- strerror()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strxfrm()

## 14.18 <threads.h>

The following methods and variables in <threads.h> are supported:

- call_once()
- cnd_broadcast()
- cnd_destroy()
- cnd_init()
- cnd_signal()
- cnd_timedwait()
- cnd_wait()
- mtx_destroy()
- mtx_init()
- mtx_lock()
- mtx_timedlock()
- mtx_trylock()
- mtx_unlock()
- thrd_create()
- thrd_current()
- thrd_detach()
- thrd_equal()
- thrd_exit()
- thrd_join()
- thrd_sleep()
- thrd_yield()
- tss_create()
- tss_delete()
- tss_get()
- tss_set()

## 14.19 <time.h>

The following methods and variables in <time.h> are supported:

- asctime()
- clock()
- ctime()
- difftime()
- gmtime()
- localtime()
- strftime()
- time()

## 14.20 <wchar.h>

The following methods and variables in <wchar.h> are supported:

- btowc()
- fgetwc()
- fgetws()
- fputwc()
- fputws()
- fwide()
- fwprintf()
- fwscanf()
- getwc()
- getwchar()
- mbrlen()
- mbrtowc()
- mbsinit()
- mbsrtowcs()
- putwc()
- putwchar()
- swprintf()
- swscanf()
- ungetwc()
- vfwprintf()
- vfwscanf()
- vswprintf()
- vswscanf()
- vwprintf()
- vwscanf()
- wcrtomb()
- wcscat()
- wcschr()
- wcscmp()
- wcscoll()
- wcscpy()
- wcscspn()

- wcsftime()
- wcslen()
- wcsncat()
- wcsncmp()
- wcsncpy()
- wcspbrk()
- wcsrchr()
- wcsrtombs()
- wcsspn()
- wcsstr()
- wcstod()
- wcstof()
- wcstok()
- wcstol()
- wcstold()
- wcstoll()
- wcstoul()
- wcstoull()
- wcsxfrm()
- wctob()
- wmemchr()
- wmemcmp()
- wmemcpy()
- wmemmove()
- wmemset()
- wprintf()
- wscanf()

## 14.21 <wctype.h>

The following methods and variables in <wctype.h> are supported:

- iswalnum()
- iswalpha()
- iswblank()
- iswcntrl()
- iswctype()
- iswdigit()
- iswgraph()
- iswlower()
- iswprint()
- iswpunct()
- iswspace()
- iswupper()
- iswxdigit()
- towctrans()
- towlower()
- towupper()
- wctrans()
- wctype()

CHAPTER

**FIFTEEN**

# FACE TECHNICAL STANDARD, EDITION 2.1 SECURITY

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 15.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 2.1 Security standard:

| | |
|---|---|
| Supported | 162 |
| ENOSYS | 1 |
| Not supported | 0 |

## 15.2 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 15.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 15.4 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 15.5 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 15.6 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- fabs()
- floor()
- fmod()
- frexp()
- isinf()
- isnan()
- ldexp()
- log()
- log10()
- modf()
- pow()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()

## 15.7 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- freeaddrinfo()
- getaddrinfo()
- getnameinfo()

## 15.8 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_init()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_create()
- pthread_equal()
- pthread_getschedparam()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_once()
- pthread_self()
- pthread_setschedparam()
- pthread_setschedprio()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_getcpuclockid()

## 15.9 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_yield()

## 15.10 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_wait()

## 15.11 <signal.h>

The following methods and variables in <signal.h> are supported:

- pthread_sigmask()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- sigpending()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 15.12 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abs()
- atof()
- atoi()
- atol()
- div()
- labs()
- ldiv()
- malloc()
- rand_r()
- strtod()
- strtol()
- strtoul()

## 15.13 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcpy()
- strcspn()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok_r()

## 15.14 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mmap()
- shm_open()

## 15.15 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- recv()
- recvfrom()
- send()
- sendto()
- setsockopt()
- shutdown()
- socket()

## 15.16 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- stat()

## 15.17 <time.h>

The following methods and variables in <time.h> are supported:

- clock_getres()
- clock_gettime()
- clock_settime()
- nanosleep()
- timer_create()
- timer_getoverrun()
- timer_gettime()
- timer_settime()

## 15.18 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- alarm()
- ftruncate()
- pause()

CHAPTER

**SIXTEEN**

# FACE TECHNICAL STANDARD, EDITION 2.1 SAFETY BASE

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 16.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 2.1 Safety Base standard:

| | |
|---|---|
| Supported | 246 |
| ENOSYS | 1 |
| Not supported | 0 |

## 16.2 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 16.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 16.4 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 16.5 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 16.6 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 16.7 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- open()

## 16.8 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- fabs()
- floor()
- fmod()
- frexp()
- isinf()
- isnan()
- ldexp()
- log()
- log10()
- modf()
- pow()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()

## 16.9 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()

## 16.10 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- freeaddrinfo()
- getaddrinfo()
- getnameinfo()

## 16.11 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_create()
- pthread_equal()
- pthread_getconcurrency()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_key_create()
- pthread_mutex_init()
- pthread_mutex_lock()

- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_once()
- pthread_self()
- pthread_setconcurrency()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_getcpuclockid()

## 16.12 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_yield()

## 16.13 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_wait()

## 16.14 <signal.h>

The following methods and variables in <signal.h> are supported:

- pthread_sigmask()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- sigpending()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 16.15 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- feof()
- ferror()
- fflush()
- fgetc()
- fgets()
- fileno()
- fopen()
- fprintf()
- fread()
- freopen()
- fseek()
- fseeko()
- ftell()
- ftello()
- fwrite()
- remove()
- rename()
- snprintf()

## 16.16 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abs()
- atof()
- atoi()
- atol()
- calloc()
- div()
- labs()
- ldiv()
- malloc()
- mktime()
- rand_r()
- strtod()
- strtol()
- strtoul()

## 16.17 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcpy()
- strcspn()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok_r()

## 16.18 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlockall()
- mmap()
- shm_open()

## 16.19 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

## 16.20 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- recv()
- recvfrom()
- send()
- sendto()
- setsockopt()
- shutdown()
- socket()

## 16.21 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- fstat()
- mkdir()
- stat()
- umask()

## 16.22 <time.h>

The following methods and variables in <time.h> are supported:

- asctime_r()
- clock_getres()
- clock_gettime()
- clock_settime()
- ctime_r()
- difftime()
- gmtime_r()
- localtime_r()
- nanosleep()
- time()
- timer_create()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

## 16.23 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- access()
- alarm()
- chdir()
- close()
- fsync()
- ftruncate()
- getcwd()
- gethostname()
- link()
- lseek()
- pause()
- read()
- rmdir()
- unlink()
- write()

CHAPTER

**SEVENTEEN**

# FACE TECHNICAL STANDARD, EDITION 2.1 SAFETY EXTENDED

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 17.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 2.1 Safety Extended standard:

| | |
|---|---|
| Supported | 316 |
| ENOSYS | 11 |
| Not supported | 9 |

## 17.2 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 17.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 17.4 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 17.5 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 17.6 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 17.7 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

## 17.8 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- fabs()
- floor()
- fmod()
- frexp()
- isinf()
- isnan()
- ldexp()
- log()
- log10()
- modf()
- pow()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()

## 17.9 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()

## 17.10 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- freeaddrinfo()
- getaddrinfo()
- getnameinfo()

## 17.11 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_create()

- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getconcurrency()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_once()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setconcurrency()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

## 17.12 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

The following methods in <sched.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- sched_getparam()
- sched_getscheduler()
- sched_setparam()
- sched_setscheduler()

## 17.13 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 17.14 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- siglongjmp()
- sigsetjmp()

## 17.15 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- sigpending()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 17.16 <spawn.h>

The following methods and variables in <spawn.h> are not supported:

- posix_spawn()
- posix_spawnattr_destroy()
- posix_spawnattr_getflags()
- posix_spawnattr_getsigdefault()
- posix_spawnattr_getsigmask()
- posix_spawnattr_init()
- posix_spawnattr_setflags()
- posix_spawnattr_setsigdefault()
- posix_spawnattr_setsigmask()

## 17.17 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_end()
- va_start()

## 17.18 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- feof()
- ferror()
- fflush()
- fgetc()
- fgets()
- fileno()
- flockfile()
- fopen()
- fprintf()
- fread()
- freopen()
- fseek()
- fseeko()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- remove()
- rename()
- snprintf()
- sscanf()
- vfprintf()
- vsnprintf()

## 17.19 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- _Exit()
- abort()
- abs()
- atexit()
- atof()
- atoi()
- atol()
- bsearch()
- calloc()
- div()
- exit()
- free()
- getenv()
- labs()
- ldiv()
- malloc()
- mktime()
- rand_r()
- realloc()
- strtod()
- strtol()
- strtoul()

## 17.20 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcpy()
- strcspn()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok_r()

## 17.21 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlockall()
- mmap()
- shm_open()

## 17.22 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

## 17.23 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- send()
- sendto()
- setsockopt()
- shutdown()
- socket()

## 17.24 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- stat()
- umask()

## 17.25 <sys/time.h>

The following methods and variables in <sys/time.h> are supported:

- times()

## 17.26 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 17.27 <sys/wait.h>

The following methods and variables in <sys/wait.h> are supported:

- waitpid()

## 17.28 <time.h>

The following methods and variables in <time.h> are supported:

- asctime_r()
- clock()
- clock_getres()
- clock_gettime()
- clock_settime()
- ctime_r()
- difftime()
- gmtime_r()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

## 17.29 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- _exit()
- access()
- alarm()
- chdir()
- chown()
- close()
- dup2()
- environ
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getpgrp()
- getpid()
- getppid()
- getuid()
- link()
- lseek()
- pause()
- pipe()
- read()
- rmdir()
- setegid()
- seteuid()
- setgid()
- setuid()
- sleep()
- sysconf()

- unlink()
- write()

The following methods in <unistd.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- execl()
- execle()
- execv()
- execve()
- fork()

CHAPTER

**EIGHTEEN**

# FACE TECHNICAL STANDARD, EDITION 2.1 GENERAL PURPOSE

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 18.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 2.1 General Purpose standard:

| | |
|---|---|
| Supported | 773 |
| ENOSYS | 13 |
| Not supported | 25 |

## 18.2 <aio.h>

The following methods and variables in <aio.h> are supported:

- aio_cancel()
- aio_error()
- aio_fsync()
- aio_read()
- aio_return()
- aio_write()
- lio_listio()

The following methods in <aio.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- aio_suspend()

## 18.3 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_addr()
- inet_ntoa()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 18.4 <assert.h>

The following methods and variables in <assert.h> are supported:

- assert()

## 18.5 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 18.6 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 18.7 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 18.8 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 18.9 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 18.10 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

## 18.11 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 18.12 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()
- wcstoimax()
- wcstoumax()

## 18.13 <locale.h>

The following methods and variables in <locale.h> are supported:

- localeconv()
- setlocale()

## 18.14 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()
- sqrt()

- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- signbit()

## 18.15 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 18.16 <net/if.h>

The following methods and variables in <net/if.h> are supported:

- if_freenameindex()
- if_indextoname()
- if_nameindex()
- if_nametoindex()

## 18.17 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- endhostent()
- endnetent()
- endprotoent()
- endservent()
- freeaddrinfo()
- gai_strerror()
- getaddrinfo()
- gethostent()
- getnameinfo()
- getnetbyaddr()
- getnetbyname()
- getnetent()
- getprotobyname()
- getprotobynumber()
- getprotoent()
- getservbyname()
- getservbyport()
- getservent()
- sethostent()
- setnetent()
- setprotoent()
- setservent()

## 18.18 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_barrier_destroy()
- pthread_barrier_init()
- pthread_barrier_wait()
- pthread_barrierattr_destroy()
- pthread_barrierattr_init()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()

- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_getpshared()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_condattr_setpshared()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getconcurrency()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_getpshared()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_mutexattr_setpshared()
- pthread_mutexattr_settype()

- pthread_once()
- pthread_rwlock_destroy()
- pthread_rwlock_init()
- pthread_rwlock_rdlock()
- pthread_rwlock_timedrdlock()
- pthread_rwlock_timedwrlock()
- pthread_rwlock_tryrdlock()
- pthread_rwlock_trywrlock()
- pthread_rwlock_unlock()
- pthread_rwlock_wrlock()
- pthread_rwlockattr_destroy()
- pthread_rwlockattr_init()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setconcurrency()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

## 18.19 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

The following methods in <sched.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- sched_getparam()
- sched_getscheduler()
- sched_setparam()
- sched_setscheduler()

## 18.20 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 18.21 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()
- siglongjmp()
- sigsetjmp()

## 18.22 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 18.23 <spawn.h>

The following methods and variables in <spawn.h> are not supported:

- posix_spawn()
- posix_spawn_file_actions_addclose()
- posix_spawn_file_actions_adddup2()
- posix_spawn_file_actions_addopen()
- posix_spawn_file_actions_destroy()
- posix_spawn_file_actions_init()
- posix_spawnattr_destroy()
- posix_spawnattr_getflags()
- posix_spawnattr_getpgroup()
- posix_spawnattr_getschedparam()
- posix_spawnattr_getschedpolicy()
- posix_spawnattr_getsigdefault()
- posix_spawnattr_getsigmask()
- posix_spawnattr_init()
- posix_spawnattr_setflags()
- posix_spawnattr_setpgroup()
- posix_spawnattr_setschedparam()
- posix_spawnattr_setschedpolicy()
- posix_spawnattr_setsigdefault()
- posix_spawnattr_setsigmask()
- posix_spawnp()

## 18.24 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 18.25 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fileno()
- flockfile()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- fsetpos()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- getc()
- getc_unlocked()
- getchar()
- getchar_unlocked()
- perror()
- printf()

- putc()
- putc_unlocked()
- putchar()
- putchar_unlocked()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setbuf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tmpfile()
- ungetc()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

## 18.26 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- _Exit()
- abort()
- abs()
- atexit()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- exit()
- free()
- getenv()
- labs()
- ldiv()
- llabs()
- lldiv()
- malloc()
- mblen()
- mbtowc()
- mktime()
- qsort()
- rand()
- rand_r()
- realloc()
- setenv()
- srand()
- strtod()
- strtof()
- strtol()
- strtold()

- strtoll()
- strtoul()
- strtoull()
- unsetenv()
- wcstombs()
- wctomb()

## 18.27 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcpy()
- strcspn()
- strerror()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strtok_r()
- strxfrm()

## 18.28 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlock()
- mlockall()
- mmap()
- mprotect()
- msync()
- munlock()
- munlockall()
- munmap()
- shm_open()
- shm_unlink()

## 18.29 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

The following methods and variables in <sys/select.h> are not supported:

- pselect()

## 18.30 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- recvmsg()
- send()
- sendmsg()
- sendto()
- setsockopt()
- shutdown()
- socket()
- socketpair()

The following methods and variables in <sys/socket.h> are not supported:

- sockatmark()

## 18.31 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fchmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- stat()
- umask()

## 18.32 <sys/time.h>

The following methods and variables in <sys/time.h> are supported:

- times()

## 18.33 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 18.34 <sys/wait.h>

The following methods and variables in <sys/wait.h> are supported:

- wait()
- waitpid()

## 18.35 <time.h>

The following methods and variables in <time.h> are supported:

- asctime_r()
- clock()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime_r()
- difftime()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

The following methods in <time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- clock_getcpuclockid()

## 18.36 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- _exit()
- access()
- alarm()
- chdir()
- chown()
- close()
- dup()
- dup2()
- environ
- fchown()
- fdatasync()
- fpathconf()
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getlogin()
- getpgrp()
- getpid()
- getppid()
- getuid()
- link()
- lseek()
- pathconf()
- pause()
- pipe()
- read()
- rmdir()

- setegid()
- seteuid()
- setgid()
- setsid()
- setuid()
- sleep()
- sysconf()
- unlink()
- write()

The following methods in <unistd.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- execl()
- execle()
- execv()
- execve()
- fork()

The following methods and variables in <unistd.h> are not supported:

- confstr()

## 18.37 <wchar.h>

The following methods and variables in <wchar.h> are supported:

- btowc()
- fgetwc()
- fgetws()
- fputwc()
- fputws()
- fwide()
- fwprintf()
- fwscanf()
- getwc()
- getwchar()
- mbrlen()
- mbrtowc()
- mbsinit()
- mbsrtowcs()
- putwc()
- putwchar()
- swprintf()
- swscanf()
- ungetwc()
- vfwprintf()
- vfwscanf()
- vswprintf()
- vswscanf()
- vwprintf()
- vwscanf()
- wcrtomb()
- wcscat()
- wcschr()
- wcscmp()
- wcscoll()
- wcscpy()
- wcscspn()

- wcsftime()
- wcslen()
- wcsncat()
- wcsncmp()
- wcsncpy()
- wcspbrk()
- wcsrchr()
- wcsrtombs()
- wcsspn()
- wcsstr()
- wcstod()
- wcstof()
- wcstok()
- wcstol()
- wcstold()
- wcstoll()
- wcstoul()
- wcstoull()
- wcsxfrm()
- wctob()
- wmemchr()
- wmemcmp()
- wmemcpy()
- wmemmove()
- wmemset()
- wprintf()
- wscanf()

## 18.38 <wctype.h>

The following methods and variables in <wctype.h> are supported:

- iswalnum()
- iswalpha()
- iswblank()
- iswcntrl()
- iswctype()
- iswdigit()
- iswgraph()
- iswlower()
- iswprint()
- iswpunct()
- iswspace()
- iswupper()
- iswxdigit()
- towctrans()
- towlower()
- towupper()
- wctrans()
- wctype()

CHAPTER

**NINETEEN**

# FACE TECHNICAL STANDARD, EDITION 3.0 SECURITY

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 19.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 3.0 Security standard:

| | |
|---|---|
| Supported | 172 |
| ENOSYS | 1 |
| Not supported | 0 |

## 19.2 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 19.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 19.4 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 19.5 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 19.6 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- exp2()
- fabs()
- floor()
- fmod()
- frexp()
- isinf()
- isnan()
- ldexp()
- log()
- log10()
- log2()
- modf()
- pow()
- round()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()
- trunc()

## 19.7 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- freeaddrinfo()
- getaddrinfo()
- getnameinfo()

## 19.8 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_init()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_create()
- pthread_equal()
- pthread_getschedparam()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_once()
- pthread_self()
- pthread_setschedparam()
- pthread_setschedprio()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_getcpuclockid()

## 19.9 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_yield()

## 19.10 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_wait()

## 19.11 <signal.h>

The following methods and variables in <signal.h> are supported:

- pthread_sigmask()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- sigpending()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 19.12 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 19.13 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 19.14 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abs()
- atof()
- atoi()
- atol()
- div()
- labs()
- ldiv()
- malloc()
- rand_r()
- strtod()
- strtol()
- strtoul()

## 19.15 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcpy()
- strcspn()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok_r()

## 19.16 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mmap()
- shm_open()

## 19.17 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- recv()
- recvfrom()
- send()
- sendto()
- setsockopt()
- socket()

## 19.18 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- stat()

## 19.19 <time.h>

The following methods and variables in <time.h> are supported:

- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- nanosleep()
- timer_create()
- timer_getoverrun()
- timer_gettime()
- timer_settime()

## 19.20 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- alarm()
- ftruncate()
- pause()

CHAPTER

**TWENTY**

# FACE TECHNICAL STANDARD, EDITION 3.0 SAFETY BASE

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 20.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 3.0 Safety Base standard:

| | |
|---|---|
| Supported | 254 |
| ENOSYS | 1 |
| Not supported | 0 |

## 20.2 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 20.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 20.4 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 20.5 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 20.6 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 20.7 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- open()

## 20.8 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- exp2()
- fabs()
- floor()
- fmod()
- frexp()
- isinf()
- isnan()
- ldexp()
- log()
- log10()
- log2()
- modf()
- pow()
- round()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()
- trunc()

## 20.9 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()

## 20.10 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- freeaddrinfo()
- getaddrinfo()
- getnameinfo()

## 20.11 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_create()
- pthread_equal()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_key_create()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_timedlock()

- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_once()
- pthread_self()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_getcpuclockid()

## 20.12 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_yield()

## 20.13 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_wait()

## 20.14 <signal.h>

The following methods and variables in <signal.h> are supported:

- pthread_sigmask()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- sigpending()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 20.15 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 20.16 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 20.17 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- feof()
- ferror()
- fflush()
- fgetc()
- fgets()
- fileno()
- fopen()
- fprintf()
- fread()
- freopen()
- fseek()
- fseeko()
- ftell()
- ftello()
- fwrite()
- remove()
- rename()
- snprintf()

## 20.18 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abs()
- atof()
- atoi()
- atol()
- calloc()
- div()
- labs()
- ldiv()
- malloc()
- mktime()
- rand_r()
- strtod()
- strtol()
- strtoul()

## 20.19 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcpy()
- strcspn()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok_r()

## 20.20 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlockall()
- mmap()
- shm_open()

## 20.21 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

## 20.22 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- recv()
- recvfrom()
- send()
- sendto()
- setsockopt()
- socket()

## 20.23 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- fstat()
- mkdir()
- stat()
- umask()

## 20.24 <time.h>

The following methods and variables in <time.h> are supported:

- asctime_r()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime_r()
- difftime()
- gmtime_r()
- localtime_r()
- nanosleep()
- time()
- timer_create()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

## 20.25 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- access()
- alarm()
- chdir()
- close()
- fsync()
- ftruncate()
- getcwd()
- gethostname()
- link()
- lseek()
- pause()
- read()
- rmdir()
- unlink()
- write()

CHAPTER

**TWENTYONE**

# FACE TECHNICAL STANDARD, EDITION 3.0 SAFETY EXTENDED

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 21.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 3.0 Safety Extended standard:

| | |
|---|---|
| Supported | 319 |
| ENOSYS | 2 |
| Not supported | 0 |

## 21.2 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 21.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 21.4 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 21.5 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 21.6 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 21.7 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

## 21.8 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- exp2()
- fabs()
- floor()
- fmod()
- frexp()
- isinf()
- isnan()
- ldexp()
- log()
- log10()
- log2()
- modf()
- pow()
- round()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()
- trunc()

## 21.9 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 21.10 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- freeaddrinfo()
- getaddrinfo()
- getnameinfo()

## 21.11 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_create()

- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_once()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

## 21.12 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

## 21.13 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 21.14 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- siglongjmp()
- sigsetjmp()

## 21.15 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- sigpending()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 21.16 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 21.17 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 21.18 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 21.19 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgets()
- fileno()
- flockfile()
- fopen()
- fprintf()
- fread()
- freopen()
- fseek()
- fseeko()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- remove()
- rename()
- snprintf()
- sscanf()
- vfprintf()
- vsnprintf()

## 21.20 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abort()
- abs()
- atof()
- atoi()
- atol()
- bsearch()
- calloc()
- div()
- free()
- getenv()
- labs()
- ldiv()
- malloc()
- mktime()
- qsort()
- rand_r()
- realloc()
- strtod()
- strtol()
- strtoul()

## 21.21 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcpy()
- strcspn()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok_r()

## 21.22 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlockall()
- mmap()
- mprotect()
- shm_open()

## 21.23 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

## 21.24 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- send()
- sendto()
- setsockopt()
- shutdown()
- socket()

## 21.25 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- stat()
- umask()

## 21.26 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 21.27 <time.h>

The following methods and variables in <time.h> are supported:

- asctime_r()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime_r()
- difftime()
- gmtime_r()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

## 21.28 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- access()
- alarm()
- chdir()
- chown()
- close()
- dup2()
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getuid()
- link()
- lseek()
- pause()
- read()
- rmdir()
- setegid()
- seteuid()
- setgid()
- setuid()
- sysconf()
- unlink()
- write()

CHAPTER

**TWENTYTWO**

# FACE TECHNICAL STANDARD, EDITION 3.0 GENERAL PURPOSE

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 22.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 3.0 General Purpose standard:

| | |
|---|---|
| Supported | 704 |
| ENOSYS | 4 |
| Not supported | 3 |

## 22.2 <aio.h>

The following methods and variables in <aio.h> are supported:

- aio_cancel()
- aio_error()
- aio_fsync()
- aio_read()
- aio_return()
- aio_write()
- lio_listio()

The following methods in <aio.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- aio_suspend()

## 22.3 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_addr()
- inet_ntoa()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 22.4 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 22.5 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 22.6 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 22.7 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 22.8 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 22.9 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

## 22.10 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 22.11 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()
- wcstoimax()
- wcstoumax()

## 22.12 <locale.h>

The following methods and variables in <locale.h> are supported:

- localeconv()
- setlocale()

## 22.13 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()
- sqrt()

- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- signbit()

## 22.14 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 22.15 <net/if.h>

The following methods and variables in <net/if.h> are supported:

- if_freenameindex()
- if_indextoname()
- if_nameindex()
- if_nametoindex()

## 22.16 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- endhostent()
- endnetent()
- endprotoent()
- endservent()
- freeaddrinfo()
- gai_strerror()
- getaddrinfo()
- gethostent()
- getnameinfo()
- getnetbyaddr()
- getnetbyname()
- getnetent()
- getprotobyname()
- getprotobynumber()
- getprotoent()
- getservbyname()
- getservbyport()
- getservent()
- sethostent()
- setnetent()
- setprotoent()
- setservent()

## 22.17 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_barrier_destroy()
- pthread_barrier_init()
- pthread_barrier_wait()
- pthread_barrierattr_destroy()
- pthread_barrierattr_init()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()

- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_mutexattr_settype()
- pthread_once()
- pthread_rwlock_destroy()
- pthread_rwlock_init()
- pthread_rwlock_rdlock()
- pthread_rwlock_timedrdlock()

- pthread_rwlock_timedwrlock()
- pthread_rwlock_tryrdlock()
- pthread_rwlock_trywrlock()
- pthread_rwlock_unlock()
- pthread_rwlock_wrlock()
- pthread_rwlockattr_destroy()
- pthread_rwlockattr_init()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

## 22.18 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

## 22.19 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 22.20 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()
- siglongjmp()
- sigsetjmp()

## 22.21 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 22.22 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 22.23 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 22.24 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 22.25 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fileno()
- flockfile()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- fsetpos()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- getc()
- getc_unlocked()
- getchar()
- getchar_unlocked()
- perror()
- printf()

- putc()
- putc_unlocked()
- putchar()
- putchar_unlocked()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tmpfile()
- ungetc()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

## 22.26 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abort()
- abs()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- free()
- getenv()
- labs()
- ldiv()
- llabs()
- lldiv()
- malloc()
- mblen()
- mbtowc()
- mktime()
- qsort()
- rand()
- rand_r()
- realloc()
- setenv()
- srand()
- strtod()
- strtof()
- strtol()
- strtold()
- strtoll()
- strtoul()
- strtoull()

- unsetenv()
- wcstombs()
- wctomb()

## 22.27 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcpy()
- strcspn()
- strerror()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strtok_r()
- strxfrm()

## 22.28 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlockall()
- mmap()
- mprotect()
- munmap()
- shm_open()
- shm_unlink()

## 22.29 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

The following methods and variables in <sys/select.h> are not supported:

- pselect()

## 22.30 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- recvmsg()
- send()
- sendmsg()
- sendto()
- setsockopt()
- shutdown()
- socket()
- socketpair()

The following methods and variables in <sys/socket.h> are not supported:

- sockatmark()

## 22.31 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fchmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- stat()
- umask()

## 22.32 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 22.33 <time.h>

The following methods and variables in <time.h> are supported:

- asctime_r()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime_r()
- difftime()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

The following methods in <time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- clock_getcpuclockid()

## 22.34 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- access()
- alarm()
- chdir()
- chown()
- close()
- dup()
- dup2()
- fchown()
- fdatasync()
- fpathconf()
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getlogin_r()
- getuid()
- link()
- lseek()
- pathconf()
- pause()
- read()
- rmdir()
- setegid()
- seteuid()
- setgid()
- setuid()
- sysconf()
- unlink()

- write()

## 22.35 <wchar.h>

The following methods and variables in <wchar.h> are supported:

- btowc()
- fgetwc()
- fgetws()
- fputwc()
- fputws()
- fwide()
- fwprintf()
- fwscanf()
- getwc()
- getwchar()
- mbrlen()
- mbrtowc()
- mbsinit()
- mbsrtowcs()

## 22.36 <wctype.h>

The following methods and variables in <wctype.h> are supported:

- iswalnum()
- iswalpha()
- iswblank()
- iswcntrl()
- iswctype()
- iswdigit()
- iswgraph()
- iswlower()
- iswprint()
- iswpunct()
- iswspace()
- iswupper()
- iswxdigit()
- towctrans()
- towlower()
- towupper()

CHAPTER

**TWENTYTHREE**

# FACE TECHNICAL STANDARD, EDITION 3.1 SECURITY

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 23.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 3.1 Security standard:

| | |
|---|---|
| Supported | 174 |
| ENOSYS | 1 |
| Not supported | 0 |

## 23.2 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 23.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 23.4 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 23.5 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 23.6 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- exp2()
- fabs()
- floor()
- fmod()
- frexp()
- isinf()
- isnan()
- ldexp()
- log()
- log10()
- log2()
- modf()
- pow()
- round()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()
- trunc()

## 23.7 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- freeaddrinfo()
- getaddrinfo()
- getnameinfo()

## 23.8 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_init()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_create()
- pthread_equal()
- pthread_getschedparam()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_once()
- pthread_self()
- pthread_setschedparam()
- pthread_setschedprio()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_getcpuclockid()

## 23.9 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_yield()

## 23.10 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_wait()

## 23.11 <signal.h>

The following methods and variables in <signal.h> are supported:

- pthread_sigmask()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- sigpending()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 23.12 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 23.13 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 23.14 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abs()
- atof()
- atoi()
- atol()
- div()
- labs()
- ldiv()
- malloc()
- rand_r()
- strtod()
- strtol()
- strtoul()

## 23.15 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcpy()
- strcspn()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok_r()

## 23.16 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlockall()
- mmap()
- shm_open()

## 23.17 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- recv()
- recvfrom()
- send()
- sendto()
- setsockopt()
- socket()

## 23.18 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- stat()

## 23.19 <time.h>

The following methods and variables in <time.h> are supported:

- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- nanosleep()
- timer_create()
- timer_getoverrun()
- timer_gettime()
- timer_settime()

## 23.20 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- alarm()
- ftruncate()
- gethostname()
- pause()

CHAPTER

**TWENTYFOUR**

# FACE TECHNICAL STANDARD, EDITION 3.1 SAFETY BASE

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 24.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 3.1 Safety Base standard:

| | |
|---|---|
| Supported | 254 |
| ENOSYS | 1 |
| Not supported | 0 |

## 24.2 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 24.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 24.4 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 24.5 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 24.6 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 24.7 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- open()

## 24.8 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- exp2()
- fabs()
- floor()
- fmod()
- frexp()
- isinf()
- isnan()
- ldexp()
- log()
- log10()
- log2()
- modf()
- pow()
- round()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()
- trunc()

## 24.9 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()

## 24.10 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- freeaddrinfo()
- getaddrinfo()
- getnameinfo()

## 24.11 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_create()
- pthread_equal()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_key_create()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_timedlock()

- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_once()
- pthread_self()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_getcpuclockid()

## 24.12 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_yield()

## 24.13 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_wait()

## 24.14 <signal.h>

The following methods and variables in <signal.h> are supported:

- pthread_sigmask()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- sigpending()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 24.15 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 24.16 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 24.17 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- feof()
- ferror()
- fflush()
- fgetc()
- fgets()
- fileno()
- fopen()
- fprintf()
- fread()
- freopen()
- fseek()
- fseeko()
- ftell()
- ftello()
- fwrite()
- remove()
- rename()
- snprintf()

## 24.18 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abs()
- atof()
- atoi()
- atol()
- calloc()
- div()
- labs()
- ldiv()
- malloc()
- mktime()
- rand_r()
- strtod()
- strtol()
- strtoul()

## 24.19 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcpy()
- strcspn()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok_r()

## 24.20 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlockall()
- mmap()
- shm_open()

## 24.21 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

## 24.22 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- recv()
- recvfrom()
- send()
- sendto()
- setsockopt()
- socket()

## 24.23 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- fstat()
- mkdir()
- stat()
- umask()

## 24.24 <time.h>

The following methods and variables in <time.h> are supported:

- asctime_r()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime_r()
- difftime()
- gmtime_r()
- localtime_r()
- nanosleep()
- time()
- timer_create()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

## 24.25 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- access()
- alarm()
- chdir()
- close()
- fsync()
- ftruncate()
- getcwd()
- gethostname()
- link()
- lseek()
- pause()
- read()
- rmdir()
- unlink()
- write()

CHAPTER

**TWENTYFIVE**

# FACE TECHNICAL STANDARD, EDITION 3.1 SAFETY EXTENDED

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 25.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 3.1 Safety Extended standard:

| | |
|---|---|
| Supported | 320 |
| ENOSYS | 2 |
| Not supported | 0 |

## 25.2 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 25.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 25.4 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 25.5 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 25.6 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 25.7 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

## 25.8 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- exp2()
- fabs()
- floor()
- fmod()
- frexp()
- isinf()
- isnan()
- ldexp()
- log()
- log10()
- log2()
- modf()
- pow()
- round()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()
- trunc()

## 25.9 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 25.10 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- freeaddrinfo()
- getaddrinfo()
- getnameinfo()

## 25.11 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_create()

- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_once()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

## 25.12 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

## 25.13 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 25.14 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- siglongjmp()
- sigsetjmp()

## 25.15 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- sigpending()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 25.16 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 25.17 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 25.18 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 25.19 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgets()
- fileno()
- flockfile()
- fopen()
- fprintf()
- fread()
- freopen()
- fseek()
- fseeko()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- remove()
- rename()
- snprintf()
- sscanf()
- vfprintf()
- vsnprintf()

## 25.20 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abort()
- abs()
- atof()
- atoi()
- atol()
- bsearch()
- calloc()
- div()
- free()
- getenv()
- labs()
- ldiv()
- malloc()
- mktime()
- qsort()
- rand_r()
- realloc()
- strtod()
- strtol()
- strtoul()

## 25.21 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcpy()
- strcspn()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok_r()

## 25.22 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlockall()
- mmap()
- mprotect()
- shm_open()

## 25.23 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

## 25.24 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- send()
- sendto()
- setsockopt()
- shutdown()
- socket()

## 25.25 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- stat()
- umask()

## 25.26 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 25.27 <time.h>

The following methods and variables in <time.h> are supported:

- asctime_r()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime_r()
- difftime()
- gmtime_r()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

## 25.28 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- access()
- alarm()
- chdir()
- chown()
- close()
- dup2()
- environ
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getuid()
- link()
- lseek()
- pause()
- read()
- rmdir()
- setegid()
- seteuid()
- setgid()
- setuid()
- sysconf()
- unlink()
- write()

CHAPTER

**TWENTYSIX**

# FACE TECHNICAL STANDARD, EDITION 3.1 GENERAL PURPOSE

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 26.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 3.1 General Purpose standard:

| | |
|---|---|
| Supported | 673 |
| ENOSYS | 4 |
| Not supported | 5 |

## 26.2 <aio.h>

The following methods and variables in <aio.h> are supported:

- aio_cancel()
- aio_error()
- aio_fsync()
- aio_read()
- aio_return()
- aio_write()
- lio_listio()

The following methods in <aio.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- aio_suspend()

## 26.3 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_addr()
- inet_ntoa()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 26.4 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 26.5 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 26.6 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 26.7 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 26.8 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 26.9 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

## 26.10 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 26.11 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()

## 26.12 <locale.h>

The following methods and variables in <locale.h> are supported:

- localeconv()
- setlocale()

## 26.13 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()
- sqrt()

- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- signbit()

## 26.14 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 26.15 <net/if.h>

The following methods and variables in <net/if.h> are supported:

- if_freenameindex()
- if_indextoname()
- if_nameindex()
- if_nametoindex()

## 26.16 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- endhostent()
- endnetent()
- endprotoent()
- endservent()
- freeaddrinfo()
- gai_strerror()
- getaddrinfo()
- gethostent()
- getnameinfo()
- getnetbyaddr()
- getnetbyname()
- getnetent()
- getprotobyname()
- getprotobynumber()
- getprotoent()
- getservbyname()
- getservbyport()
- getservent()
- sethostent()
- setnetent()
- setprotoent()
- setservent()

## 26.17 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_barrier_destroy()
- pthread_barrier_init()
- pthread_barrier_wait()
- pthread_barrierattr_destroy()
- pthread_barrierattr_init()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()

- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_getpshared()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_condattr_setpshared()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_getpshared()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_mutexattr_setpshared()
- pthread_mutexattr_settype()
- pthread_once()

- pthread_rwlock_destroy()
- pthread_rwlock_init()
- pthread_rwlock_rdlock()
- pthread_rwlock_timedrdlock()
- pthread_rwlock_timedwrlock()
- pthread_rwlock_tryrdlock()
- pthread_rwlock_trywrlock()
- pthread_rwlock_unlock()
- pthread_rwlock_wrlock()
- pthread_rwlockattr_destroy()
- pthread_rwlockattr_init()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

## 26.18 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

## 26.19 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 26.20 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()
- siglongjmp()
- sigsetjmp()

The following methods and variables in <setjmp.h> are not supported:

- _longjmp()
- _setjmp()

## 26.21 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 26.22 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 26.23 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 26.24 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 26.25 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fileno()
- flockfile()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- fsetpos()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- getc()
- getc_unlocked()
- getchar()
- getchar_unlocked()
- perror()
- printf()

- putc()
- putc_unlocked()
- putchar()
- putchar_unlocked()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tmpfile()
- ungetc()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

## 26.26 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abort()
- abs()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- free()
- getenv()
- labs()
- ldiv()
- llabs()
- lldiv()
- malloc()
- mktime()
- qsort()
- rand()
- rand_r()
- realloc()
- setenv()
- srand()
- strtod()
- strtof()
- strtol()
- strtold()
- strtoll()
- strtoul()
- strtoull()
- unsetenv()

## 26.27 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcpy()
- strcspn()
- strerror()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strtok_r()
- strxfrm()

## 26.28 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mlockall()
- mmap()
- mprotect()
- munmap()
- shm_open()
- shm_unlink()

## 26.29 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

The following methods and variables in <sys/select.h> are not supported:

- pselect()

## 26.30 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- recvmsg()
- send()
- sendmsg()
- sendto()
- setsockopt()
- shutdown()
- socket()
- socketpair()

The following methods and variables in <sys/socket.h> are not supported:

- sockatmark()

## 26.31 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fchmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- stat()
- umask()

## 26.32 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 26.33 <time.h>

The following methods and variables in <time.h> are supported:

- asctime_r()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime_r()
- difftime()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

The following methods in <time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- clock_getcpuclockid()

## 26.34 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- access()
- alarm()
- chdir()
- chown()
- close()
- dup()
- dup2()
- environ
- fchown()
- fdatasync()
- fpathconf()
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getlogin_r()
- getuid()
- link()
- lseek()
- pathconf()
- pause()
- read()
- rmdir()
- setegid()
- seteuid()
- setgid()
- setuid()
- sysconf()

- unlink()
- write()

CHAPTER

**TWENTYSEVEN**

# FACE TECHNICAL STANDARD, EDITION 3.2 SECURITY

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 27.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 3.2 Security standard:

| | |
|---|---|
| Supported | 172 |
| ENOSYS | 1 |
| Not supported | 0 |

## 27.2 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 27.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 27.4 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 27.5 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 27.6 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- exp2()
- fabs()
- floor()
- fmod()
- frexp()
- isinf()
- isnan()
- ldexp()
- log()
- log10()
- log2()
- modf()
- pow()
- round()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()
- trunc()

## 27.7 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- freeaddrinfo()
- getaddrinfo()
- getnameinfo()

## 27.8 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_init()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_create()
- pthread_equal()
- pthread_getschedparam()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_once()
- pthread_self()
- pthread_setschedparam()
- pthread_setschedprio()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_getcpuclockid()

## 27.9 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_yield()

## 27.10 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_wait()

## 27.11 <signal.h>

The following methods and variables in <signal.h> are supported:

- pthread_sigmask()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- sigpending()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 27.12 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 27.13 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 27.14 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abs()
- atof()
- atoi()
- atol()
- div()
- labs()
- ldiv()
- malloc()
- rand_r()
- strtod()
- strtol()
- strtoul()

## 27.15 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcpy()
- strcspn()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok_r()

## 27.16 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mmap()
- shm_open()

## 27.17 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- recv()
- recvfrom()
- send()
- sendto()
- setsockopt()
- socket()

## 27.18 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- stat()

## 27.19 <time.h>

The following methods and variables in <time.h> are supported:

- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- nanosleep()
- timer_create()
- timer_getoverrun()
- timer_gettime()
- timer_settime()

## 27.20 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- alarm()
- ftruncate()
- pause()

CHAPTER

**TWENTYEIGHT**

# FACE TECHNICAL STANDARD, EDITION 3.2 SAFETY BASE

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 28.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 3.2 Safety Base standard:

| | |
|---|---|
| Supported | 253 |
| ENOSYS | 1 |
| Not supported | 0 |

## 28.2 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 28.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 28.4 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 28.5 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 28.6 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 28.7 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- open()

## 28.8 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- exp2()
- fabs()
- floor()
- fmod()
- frexp()
- isinf()
- isnan()
- ldexp()
- log()
- log10()
- log2()
- modf()
- pow()
- round()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()
- trunc()

## 28.9 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()

## 28.10 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- freeaddrinfo()
- getaddrinfo()
- getnameinfo()

## 28.11 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_create()
- pthread_equal()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_key_create()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_timedlock()

- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_once()
- pthread_self()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_getcpuclockid()

## 28.12 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_yield()

## 28.13 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_wait()

## 28.14 <signal.h>

The following methods and variables in <signal.h> are supported:

- pthread_sigmask()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- sigpending()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 28.15 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 28.16 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 28.17 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- feof()
- ferror()
- fflush()
- fgetc()
- fgets()
- fileno()
- fopen()
- fprintf()
- fread()
- freopen()
- fseek()
- fseeko()
- ftell()
- ftello()
- fwrite()
- remove()
- rename()
- snprintf()

## 28.18 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abs()
- atof()
- atoi()
- atol()
- calloc()
- div()
- labs()
- ldiv()
- malloc()
- mktime()
- rand_r()
- strtod()
- strtol()
- strtoul()

## 28.19 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcpy()
- strcspn()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok_r()

## 28.20 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mmap()
- shm_open()

## 28.21 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

## 28.22 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- recv()
- recvfrom()
- send()
- sendto()
- setsockopt()
- socket()

## 28.23 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- fstat()
- mkdir()
- stat()
- umask()

## 28.24 <time.h>

The following methods and variables in <time.h> are supported:

- asctime_r()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime_r()
- difftime()
- gmtime_r()
- localtime_r()
- nanosleep()
- time()
- timer_create()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

## 28.25 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- access()
- alarm()
- chdir()
- close()
- fsync()
- ftruncate()
- getcwd()
- gethostname()
- link()
- lseek()
- pause()
- read()
- rmdir()
- unlink()
- write()

CHAPTER

**TWENTYNINE**

# FACE TECHNICAL STANDARD, EDITION 3.2 SAFETY EXTENDED

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 29.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 3.2 Safety Extended standard:

| | |
|---|---|
| Supported | 319 |
| ENOSYS | 2 |
| Not supported | 0 |

## 29.2 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 29.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 29.4 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 29.5 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 29.6 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 29.7 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

## 29.8 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- exp2()
- fabs()
- floor()
- fmod()
- frexp()
- isinf()
- isnan()
- ldexp()
- log()
- log10()
- log2()
- modf()
- pow()
- round()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()
- trunc()

## 29.9 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 29.10 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- freeaddrinfo()
- getaddrinfo()
- getnameinfo()

## 29.11 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_create()

- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_once()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

## 29.12 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

## 29.13 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 29.14 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- siglongjmp()
- sigsetjmp()

## 29.15 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- sigpending()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 29.16 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 29.17 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 29.18 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 29.19 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgets()
- fileno()
- flockfile()
- fopen()
- fprintf()
- fread()
- freopen()
- fseek()
- fseeko()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- remove()
- rename()
- snprintf()
- sscanf()
- vfprintf()
- vsnprintf()

## 29.20 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abort()
- abs()
- atof()
- atoi()
- atol()
- bsearch()
- calloc()
- div()
- free()
- getenv()
- labs()
- ldiv()
- malloc()
- mktime()
- qsort()
- rand_r()
- realloc()
- strtod()
- strtol()
- strtoul()

## 29.21 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcpy()
- strcspn()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok_r()

## 29.22 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mmap()
- mprotect()
- shm_open()

## 29.23 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

## 29.24 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- send()
- sendto()
- setsockopt()
- shutdown()
- socket()

## 29.25 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- stat()
- umask()

## 29.26 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 29.27 <time.h>

The following methods and variables in <time.h> are supported:

- asctime_r()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime_r()
- difftime()
- gmtime_r()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

## 29.28 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- access()
- alarm()
- chdir()
- chown()
- close()
- dup2()
- environ
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getuid()
- link()
- lseek()
- pause()
- read()
- rmdir()
- setegid()
- seteuid()
- setgid()
- setuid()
- sysconf()
- unlink()
- write()

CHAPTER

**THIRTY**

# FACE TECHNICAL STANDARD, EDITION 3.2 GENERAL PURPOSE

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 30.1 Summary

The follow table summarizes alignment with the FACE Technical Standard, Edition 3.2 General Purpose standard:

| | |
|---|---|
| Supported | 672 |
| ENOSYS | 4 |
| Not supported | 5 |

## 30.2 <aio.h>

The following methods and variables in <aio.h> are supported:

- aio_cancel()
- aio_error()
- aio_fsync()
- aio_read()
- aio_return()
- aio_write()
- lio_listio()

The following methods in <aio.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- aio_suspend()

## 30.3 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- inet_addr()
- inet_ntoa()
- inet_ntop()
- inet_pton()
- ntohl()
- ntohs()

## 30.4 <complex.h>

The following methods and variables in <complex.h> are supported:

- cabs()
- cabsf()
- cabsl()
- cacos()
- cacosf()
- cacosh()
- cacoshf()
- cacoshl()
- cacosl()
- carg()
- cargf()
- cargl()
- casin()
- casinf()
- casinh()
- casinhf()
- casinhl()
- casinl()
- catan()
- catanf()
- catanh()
- catanhf()
- catanhl()
- catanl()
- ccos()
- ccosf()
- ccosh()
- ccoshf()
- ccoshl()
- ccosl()
- cexp()
- cexpf()

- cexpl()
- cimag()
- cimagf()
- cimagl()
- clog()
- clogf()
- clogl()
- conj()
- conjf()
- conjl()
- cpow()
- cpowf()
- cpowl()
- cproj()
- cprojf()
- cprojl()
- creal()
- crealf()
- creall()
- csin()
- csinf()
- csinh()
- csinhf()
- csinhl()
- csinl()
- csqrt()
- csqrtf()
- csqrtl()
- ctan()
- ctanf()
- ctanh()
- ctanhf()
- ctanhl()
- ctanl()

## 30.5 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 30.6 <devctl.h>

The following methods and variables in <devctl.h> are supported:

- posix_devctl()

## 30.7 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 30.8 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 30.9 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- fcntl()
- open()

## 30.10 <fenv.h>

The following methods and variables in <fenv.h> are supported:

- feclearexcept()
- fegetenv()
- fegetexceptflag()
- fegetround()
- feholdexcept()
- feraiseexcept()
- fesetenv()
- fesetexceptflag()
- fesetround()
- fetestexcept()
- feupdateenv()

## 30.11 <inttypes.h>

The following methods and variables in <inttypes.h> are supported:

- imaxabs()
- imaxdiv()
- strtoimax()
- strtoumax()

## 30.12 <locale.h>

The following methods and variables in <locale.h> are supported:

- localeconv()
- setlocale()

## 30.13 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosf()
- acosh()
- acoshf()
- acoshl()
- acosl()
- asin()
- asinf()
- asinh()
- asinhf()
- asinhl()
- asinl()
- atan()
- atan2()
- atan2f()
- atan2l()
- atanf()
- atanh()
- atanhf()
- atanhl()
- atanl()
- cbrt()
- cbrtf()
- cbrtl()
- ceil()
- ceilf()
- ceill()
- copysign()
- copysignf()
- copysignl()
- cos()
- cosf()

- cosh()
- coshf()
- coshl()
- cosl()
- erf()
- erfc()
- erfcf()
- erfcl()
- erff()
- erfl()
- exp()
- exp2()
- exp2f()
- exp2l()
- expf()
- expl()
- expm1()
- expm1f()
- expm1l()
- fabs()
- fabsf()
- fabsl()
- fdim()
- fdimf()
- fdiml()
- floor()
- floorf()
- floorl()
- fma()
- fmaf()
- fmal()
- fmax()
- fmaxf()
- fmaxl()

- fmin()
- fminf()
- fminl()
- fmod()
- fmodf()
- fmodl()
- fpclassify()
- frexp()
- frexpf()
- frexpl()
- hypot()
- hypotf()
- hypotl()
- ilogb()
- ilogbf()
- ilogbl()
- isfinite()
- isgreater()
- isgreaterequal()
- isinf()
- isless()
- islessequal()
- islessgreater()
- isnan()
- isnormal()
- isunordered()
- ldexp()
- ldexpf()
- ldexpl()
- lgamma()
- lgammaf()
- lgammal()
- llrint()
- llrintf()

- llrintl()
- llround()
- llroundf()
- llroundl()
- log()
- log10()
- log10f()
- log10l()
- log1p()
- log1pf()
- log1pl()
- log2()
- log2f()
- log2l()
- logb()
- logbf()
- logbl()
- logf()
- logl()
- lrint()
- lrintf()
- lrintl()
- lround()
- lroundf()
- lroundl()
- modf()
- modff()
- modfl()
- nan()
- nanf()
- nanl()
- nearbyint()
- nearbyintf()
- nearbyintl()

- nextafter()
- nextafterf()
- nextafterl()
- nexttoward()
- nexttowardf()
- nexttowardl()
- pow()
- powf()
- powl()
- remainder()
- remainderf()
- remainderl()
- remquo()
- remquof()
- remquol()
- rint()
- rintf()
- rintl()
- round()
- roundf()
- roundl()
- scalbln()
- scalblnf()
- scalblnl()
- scalbn()
- scalbnf()
- scalbnl()
- sin()
- sinf()
- sinh()
- sinhf()
- sinhl()
- sinl()
- sqrt()

- sqrtf()
- sqrtl()
- tan()
- tanf()
- tanh()
- tanhf()
- tanhl()
- tanl()
- tgamma()
- tgammaf()
- tgammal()
- trunc()
- truncf()
- truncl()

The following methods and variables in <math.h> are not supported:

- signbit()

## 30.14 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_timedreceive()
- mq_timedsend()
- mq_unlink()

## 30.15 <net/if.h>

The following methods and variables in <net/if.h> are supported:

- if_freenameindex()
- if_indextoname()
- if_nameindex()
- if_nametoindex()

## 30.16 <netdb.h>

The following methods and variables in <netdb.h> are supported:

- endhostent()
- endnetent()
- endprotoent()
- endservent()
- freeaddrinfo()
- gai_strerror()
- getaddrinfo()
- gethostent()
- getnameinfo()
- getnetbyaddr()
- getnetbyname()
- getnetent()
- getprotobyname()
- getprotobynumber()
- getprotoent()
- getservbyname()
- getservbyport()
- getservent()
- sethostent()
- setnetent()
- setprotoent()
- setservent()

## 30.17 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstacksize()
- pthread_barrier_destroy()
- pthread_barrier_init()
- pthread_barrier_wait()
- pthread_barrierattr_destroy()
- pthread_barrierattr_init()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()

- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_getpshared()
- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_condattr_setpshared()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_getpshared()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_mutexattr_setpshared()
- pthread_mutexattr_settype()
- pthread_once()

- pthread_rwlock_destroy()
- pthread_rwlock_init()
- pthread_rwlock_rdlock()
- pthread_rwlock_timedrdlock()
- pthread_rwlock_timedwrlock()
- pthread_rwlock_tryrdlock()
- pthread_rwlock_trywrlock()
- pthread_rwlock_unlock()
- pthread_rwlock_wrlock()
- pthread_rwlockattr_destroy()
- pthread_rwlockattr_init()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setschedparam()
- pthread_setschedprio()
- pthread_setspecific()
- pthread_testcancel()

The following methods in <pthread.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- pthread_atfork()
- pthread_getcpuclockid()

## 30.18 <sched.h>

The following methods and variables in <sched.h> are supported:

- sched_get_priority_max()
- sched_get_priority_min()
- sched_rr_get_interval()
- sched_yield()

## 30.19 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 30.20 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()
- siglongjmp()
- sigsetjmp()

The following methods and variables in <setjmp.h> are not supported:

- _longjmp()
- _setjmp()

## 30.21 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigqueue()
- sigsuspend()
- sigtimedwait()
- sigwait()
- sigwaitinfo()

## 30.22 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 30.23 <stddef.h>

The following methods and variables in <stddef.h> are supported:

- offsetof()

## 30.24 <stdint.h>

The following methods and variables in <stdint.h> are supported:

- INTMAX_C()
- INTN_C()
- UINTMAX_C()
- UINTN_C()

## 30.25 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgetpos()
- fgets()
- fileno()
- flockfile()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- fsetpos()
- ftell()
- ftello()
- ftrylockfile()
- funlockfile()
- fwrite()
- getc()
- getc_unlocked()
- getchar()
- getchar_unlocked()
- perror()
- printf()

- putc()
- putc_unlocked()
- putchar()
- putchar_unlocked()
- puts()
- remove()
- rename()
- rewind()
- scanf()
- setvbuf()
- snprintf()
- sprintf()
- sscanf()
- stderr
- stdin
- stdout
- tmpfile()
- ungetc()
- vfprintf()
- vfscanf()
- vprintf()
- vscanf()
- vsnprintf()
- vsprintf()
- vsscanf()

## 30.26 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abort()
- abs()
- atof()
- atoi()
- atol()
- atoll()
- bsearch()
- calloc()
- div()
- free()
- getenv()
- labs()
- ldiv()
- llabs()
- lldiv()
- malloc()
- mktime()
- qsort()
- rand()
- rand_r()
- realloc()
- setenv()
- srand()
- strtod()
- strtof()
- strtol()
- strtold()
- strtoll()
- strtoul()
- strtoull()
- unsetenv()

## 30.27 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strcat()
- strchr()
- strcmp()
- strcoll()
- strcpy()
- strcspn()
- strerror()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strtok_r()
- strxfrm()

## 30.28 <sys/mman.h>

The following methods and variables in <sys/mman.h> are supported:

- mmap()
- mprotect()
- munmap()
- shm_open()
- shm_unlink()

## 30.29 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- FD_CLR()
- FD_ISSET()
- FD_SET()
- FD_ZERO()
- select()

The following methods and variables in <sys/select.h> are not supported:

- pselect()

## 30.30 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getpeername()
- getsockname()
- getsockopt()
- listen()
- recv()
- recvfrom()
- recvmsg()
- send()
- sendmsg()
- sendto()
- setsockopt()
- shutdown()
- socket()
- socketpair()

The following methods and variables in <sys/socket.h> are not supported:

- sockatmark()

## 30.31 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- chmod()
- fchmod()
- fstat()
- lstat()
- mkdir()
- mkfifo()
- stat()
- umask()

## 30.32 <sys/utsname.h>

The following methods and variables in <sys/utsname.h> are supported:

- uname()

## 30.33 <time.h>

The following methods and variables in <time.h> are supported:

- asctime_r()
- clock_getres()
- clock_gettime()
- clock_nanosleep()
- clock_settime()
- ctime_r()
- difftime()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()
- tzname
- tzset()

The following methods in <time.h> are implemented as stubs returning -1 and setting errno to ENOSYS:

- clock_getcpuclockid()

## 30.34 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- access()
- alarm()
- chdir()
- chown()
- close()
- dup()
- dup2()
- environ
- fchown()
- fdatasync()
- fpathconf()
- fsync()
- ftruncate()
- getcwd()
- getegid()
- geteuid()
- getgid()
- getgroups()
- gethostname()
- getlogin_r()
- getuid()
- link()
- lseek()
- pathconf()
- pause()
- read()
- rmdir()
- setegid()
- seteuid()
- setgid()
- setuid()
- sysconf()

- unlink()
- write()

CHAPTER

**THIRTYONE**

# SOFTWARE COMMUNICATIONS ARCHITECTURE 2.2.2 AEP

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 31.1 Summary

The follow table summarizes alignment with the Software Communications Architecture 2.2.2 AEP standard:

| | |
|---|---|
| Supported | 243 |
| ENOSYS | 0 |
| Not supported | 0 |

## 31.2 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 31.3 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 31.4 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- open()

## 31.5 <locale.h>

The following methods and variables in <locale.h> are supported:

- setlocale()

## 31.6 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- asin()
- atan()
- atan2()
- ceil()
- cos()
- cosh()
- exp()
- fabs()
- floor()
- fmod()
- frexp()
- ldexp()
- log()
- log10()
- modf()
- pow()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()

## 31.7 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getguardsize()
- pthread_attr_getinheritsched()
- pthread_attr_getschedparam()
- pthread_attr_getschedpolicy()
- pthread_attr_getscope()
- pthread_attr_getstack()
- pthread_attr_getstackaddr()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setdetachstate()
- pthread_attr_setguardsize()
- pthread_attr_setinheritsched()
- pthread_attr_setschedparam()
- pthread_attr_setschedpolicy()
- pthread_attr_setscope()
- pthread_attr_setstack()
- pthread_attr_setstackaddr()
- pthread_attr_setstacksize()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_getclock()
- pthread_condattr_getpshared()

- pthread_condattr_init()
- pthread_condattr_setclock()
- pthread_condattr_setpshared()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_getprioceiling()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_setprioceiling()
- pthread_mutex_timedlock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_destroy()
- pthread_mutexattr_getprioceiling()
- pthread_mutexattr_getprotocol()
- pthread_mutexattr_getpshared()
- pthread_mutexattr_gettype()
- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_setprotocol()
- pthread_mutexattr_setpshared()
- pthread_mutexattr_settype()
- pthread_once()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()

- pthread_setschedparam()
- pthread_setspecific()
- pthread_testcancel()

## 31.8 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 31.9 <setjmp.h>

The following methods and variables in <setjmp.h> are supported:

- longjmp()
- setjmp()

## 31.10 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigsuspend()
- sigwait()

## 31.11 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgets()
- fileno()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- ftell()
- ftello()
- fwrite()
- getc()
- getchar()
- gets()
- perror()
- printf()
- putc()
- putchar()
- puts()
- remove()
- rename()
- rewind()

- scanf()
- setbuf()
- setvbuf()
- sprintf()
- sscanf()
- tmpfile()
- tmpnam()
- ungetc()

## 31.12 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abort()
- abs()
- atof()
- atoi()
- atol()
- bsearch()
- calloc()
- free()
- malloc()
- qsort()
- rand()
- rand_r()
- realloc()
- srand()

## 31.13 <string.h>

The following methods and variables in <string.h> are supported:

- strcat()
- strchr()
- strcmp()
- strcpy()
- strcspn()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strtok_r()

## 31.14 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- fstat()
- mkdir()
- stat()

## 31.15 <time.h>

The following methods and variables in <time.h> are supported:

- asctime()
- asctime_r()
- clock_getres()
- clock_gettime()
- clock_settime()
- ctime()
- ctime_r()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()

## 31.16 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- access()
- chdir()
- close()
- fpathconf()
- getcwd()
- link()
- lseek()
- pathconf()
- pause()
- read()
- rmdir()
- unlink()
- write()

## 31.17 <utime.h>

The following methods and variables in <utime.h> are supported:

- utime()

CHAPTER

**THIRTYTWO**

# SOFTWARE COMMUNICATIONS ARCHITECTURE 4.1 ULTRA LIGHTWEIGHT APPLICATION ENVIRONMENT PROFILE

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 32.1 Summary

The follow table summarizes alignment with the Software Communications Architecture 4.1 Ultra Lightweight Application Environment Profile standard:

| | |
|---|---|
| Supported | 22 |
| ENOSYS | 0 |
| Not supported | 0 |

## 32.2 <math.h>

The following methods and variables in <math.h> are supported:

- exp()
- exp2()

## 32.3 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_open()
- mq_receive()
- mq_send()

## 32.4 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setinheritsched()
- pthread_create()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_unlock()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_settype()
- pthread_self()

## 32.5 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_init()
- sem_post()
- sem_wait()

## 32.6 <time.h>

The following methods and variables in <time.h> are supported:

- clock_getres()
- clock_gettime()
- timer_create()
- timer_settime()

CHAPTER

**THIRTYTHREE**

# SOFTWARE COMMUNICATIONS ARCHITECTURE 4.1 LIGHTWEIGHT APPLICATION ENVIRONMENT PROFILE

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 33.1 Summary

The follow table summarizes alignment with the Software Communications Architecture 4.1 Lightweight Application Environment Profile standard:

| | |
|---|---|
| Supported | 110 |
| ENOSYS | 0 |
| Not supported | 0 |

## 33.2 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 33.3 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- open()

## 33.4 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- exp2()
- fabs()
- floor()
- fmod()
- frexp()
- ldexp()
- log()
- log10()
- log2()
- modf()
- pow()
- round()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()
- trunc()

## 33.5 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_open()
- mq_receive()
- mq_send()

## 33.6 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getschedparam()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setinheritsched()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_wait()
- pthread_create()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_unlock()
- pthread_mutexattr_getpshared()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_settype()
- pthread_self()

## 33.7 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_getvalue()
- sem_init()
- sem_post()
- sem_wait()

## 33.8 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- sscanf()

## 33.9 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abs()
- atof()
- atoi()
- atol()
- bsearch()
- calloc()
- free()
- malloc()
- qsort()
- rand()
- realloc()
- srand()

## 33.10 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strchr()
- strcmp()
- strcspn()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()

## 33.11 <time.h>

The following methods and variables in <time.h> are supported:

- clock_getres()
- clock_gettime()
- gmtime()
- localtime()
- strftime()
- time()
- timer_create()
- timer_gettime()
- timer_settime()

## 33.12 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- close()
- read()
- write()

CHAPTER

**THIRTYFOUR**

# SOFTWARE COMMUNICATIONS ARCHITECTURE 4.1 [FULL] APPLIATION ENVIRONMENT PROFILE

This chapter has a subsection per header file to detail the methods provided by RTEMS that are in that header file.

## 34.1 Summary

The follow table summarizes alignment with the Software Communications Architecture 4.1 [Full] Appliation Environment Profile standard:

| | |
|---|---|
| Supported | 255 |
| ENOSYS | 0 |
| Not supported | 0 |

## 34.2 <arpa/inet.h>

The following methods and variables in <arpa/inet.h> are supported:

- htonl()
- htons()
- ntohl()
- ntohs()

## 34.3 <ctype.h>

The following methods and variables in <ctype.h> are supported:

- isalnum()
- isalpha()
- isblank()
- iscntrl()
- isdigit()
- isgraph()
- islower()
- isprint()
- ispunct()
- isspace()
- isupper()
- isxdigit()
- tolower()
- toupper()

## 34.4 <dirent.h>

The following methods and variables in <dirent.h> are supported:

- closedir()
- opendir()
- readdir()
- readdir_r()
- rewinddir()

## 34.5 <errno.h>

The following methods and variables in <errno.h> are supported:

- errno

## 34.6 <fcntl.h>

The following methods and variables in <fcntl.h> are supported:

- creat()
- open()

## 34.7 <math.h>

The following methods and variables in <math.h> are supported:

- acos()
- acosh()
- asin()
- asinh()
- atan()
- atan2()
- atanh()
- ceil()
- cos()
- cosh()
- exp()
- exp2()
- fabs()
- floor()
- fmod()
- frexp()
- ldexp()
- log()
- log10()
- log2()
- modf()
- pow()
- round()
- sin()
- sinh()
- sqrt()
- tan()
- tanh()
- trunc()

## 34.8 <mqueue.h>

The following methods and variables in <mqueue.h> are supported:

- mq_close()
- mq_getattr()
- mq_notify()
- mq_open()
- mq_receive()
- mq_send()
- mq_setattr()
- mq_unlink()

## 34.9 <pthread.h>

The following methods and variables in <pthread.h> are supported:

- pthread_attr_destroy()
- pthread_attr_getdetachstate()
- pthread_attr_getschedparam()
- pthread_attr_getstacksize()
- pthread_attr_init()
- pthread_attr_setinheritsched()
- pthread_cancel()
- pthread_cleanup_pop()
- pthread_cleanup_push()
- pthread_cond_broadcast()
- pthread_cond_destroy()
- pthread_cond_init()
- pthread_cond_signal()
- pthread_cond_timedwait()
- pthread_cond_wait()
- pthread_condattr_destroy()
- pthread_condattr_init()
- pthread_create()
- pthread_detach()
- pthread_equal()
- pthread_exit()
- pthread_getschedparam()
- pthread_getspecific()
- pthread_join()
- pthread_key_create()
- pthread_key_delete()
- pthread_mutex_destroy()
- pthread_mutex_init()
- pthread_mutex_lock()
- pthread_mutex_trylock()
- pthread_mutex_unlock()
- pthread_mutexattr_getpshared()

- pthread_mutexattr_init()
- pthread_mutexattr_setprioceiling()
- pthread_mutexattr_settype()
- pthread_once()
- pthread_self()
- pthread_setcancelstate()
- pthread_setcanceltype()
- pthread_setschedparam()
- pthread_setspecific()
- pthread_testcancel()

## 34.10 <semaphore.h>

The following methods and variables in <semaphore.h> are supported:

- sem_close()
- sem_destroy()
- sem_getvalue()
- sem_init()
- sem_open()
- sem_post()
- sem_timedwait()
- sem_trywait()
- sem_unlink()
- sem_wait()

## 34.11 <signal.h>

The following methods and variables in <signal.h> are supported:

- kill()
- pthread_kill()
- pthread_sigmask()
- raise()
- sigaction()
- sigaddset()
- sigdelset()
- sigemptyset()
- sigfillset()
- sigismember()
- signal()
- sigpending()
- sigprocmask()
- sigsuspend()
- sigwait()

## 34.12 <stdarg.h>

The following methods and variables in <stdarg.h> are supported:

- va_arg()
- va_copy()
- va_end()
- va_start()

## 34.13 <stdio.h>

The following methods and variables in <stdio.h> are supported:

- clearerr()
- fclose()
- fdopen()
- feof()
- ferror()
- fflush()
- fgetc()
- fgets()
- fileno()
- fopen()
- fprintf()
- fputc()
- fputs()
- fread()
- freopen()
- fscanf()
- fseek()
- fseeko()
- ftell()
- ftello()
- fwrite()
- getc()
- getchar()
- perror()
- printf()
- putc()
- putchar()
- remove()
- rename()
- rewind()
- setbuf()
- setvbuf()

- snprintf()
- sscanf()
- ungetc()
- vsnprintf()

## 34.14 <stdlib.h>

The following methods and variables in <stdlib.h> are supported:

- abort()
- abs()
- atof()
- atoi()
- atol()
- bsearch()
- calloc()
- free()
- labs()
- malloc()
- qsort()
- rand()
- rand_r()
- realloc()
- srand()
- strtod()
- strtol()
- strtoul()

## 34.15 <string.h>

The following methods and variables in <string.h> are supported:

- memchr()
- memcmp()
- memcpy()
- memmove()
- memset()
- strchr()
- strcmp()
- strcoll()
- strcspn()
- strerror()
- strerror_r()
- strlen()
- strncat()
- strncmp()
- strncpy()
- strpbrk()
- strrchr()
- strspn()
- strstr()
- strtok()
- strtok_r()
- strxfrm()

## 34.16 <sys/select.h>

The following methods and variables in <sys/select.h> are supported:

- select()

## 34.17 <sys/socket.h>

The following methods and variables in <sys/socket.h> are supported:

- accept()
- bind()
- connect()
- getsockopt()
- listen()
- recv()
- recvfrom()
- send()
- sendto()
- setsockopt()
- socket()

## 34.18 <sys/stat.h>

The following methods and variables in <sys/stat.h> are supported:

- fstat()
- mkdir()
- stat()

## 34.19 <time.h>

The following methods and variables in <time.h> are supported:

- asctime_r()
- clock_getres()
- clock_gettime()
- clock_settime()
- ctime_r()
- gmtime()
- gmtime_r()
- localtime()
- localtime_r()
- nanosleep()
- strftime()
- time()
- timer_create()
- timer_delete()
- timer_getoverrun()
- timer_gettime()
- timer_settime()

## 34.20 <unistd.h>

The following methods and variables in <unistd.h> are supported:

- access()
- chdir()
- close()
- fpathconf()
- getcwd()
- link()
- lseek()
- pathconf()
- pause()
- read()
- rmdir()
- unlink()
- write()

CHAPTER

**THIRTYFIVE**

# GLOSSARY

**POSIX**
Portable Operating System Interface is a family of standards specified by the IEEE Computer Society for maintaining compatibility between operating systems.

# INDEX

P
POSIX, **1325**