```
**********************************************************
    2309 Fri Jan 10 14:01:40 2020
new/usr/src/man/man7d/av1394.7d
11639 some man pages show incorrect driver locations
**********************************************************
'\" te
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.TH AV1394 7D "Jan 10, 2020"
.TH AV1394 7D "Apr 3, 2009"
.SH NAME
av1394 \- 1394 audio/video driver
.SH SYNOPSIS
.LP
.nf
\fBunit@GUID\fR
.fi

.SH DESCRIPTION
.sp
.LP
The \fBav1394\fR driver implements \fBiec61883\fR(7I) interfaces for IEEE 1394
compliant devices.
.SS "Asynchronous Transactions"
.sp
.LP
The driver allows applications to act as FCP controllers, but not FCP targets.
Only \fBIEC61883_FCP_CMD\fR requests can be sent with \fBwrite\fR(2). Only
\fBIEC61883_FCP_RESP\fR requests can be received with \fBread\fR(2).
.SS "Isochronous Transactions"
.sp
.LP
When the read/write method of is used for transmit, the driver is capable of
auto-detecting and transmitting SD-DVCR 525/60 and 625/50 streams. See
\fBiec61883\fR(7I) for details.
.SH FILES
.sp
.ne 2
.na
\fB/dev/av/N/async\fR
\fB\fB/dev/av/N/async\fR\fR
.ad
.RS 29n
device node for asynchronous data
.RE

.sp
.ne 2
.na
\fB/dev/av/N/isoch\fR
\fB\fB/dev/av/N/isoch\fR\fR
.ad
.RS 29n
device node for isochronous data
.RE

.sp
.ne 2
.na
\fB/kernel/drv/sparcv9/av1394\fR
\fB\fBkernel/drv/sparcv9/av1394\fR\fR
.ad
.RS 29n
Device driver (SPARC)
```



```
64-bit ELF kernel module
.RE

.sp
.ne 2
.na
\fB/kernel/drv/amd64/av1394\fR
\fB\fBkernel/drv/av1394\fR\fR
.ad
.RS 29n
Device driver (x86)
32-bit ELF kernel module
.RE

.sp
.ne 2
.na
\fB\fBkernel/drv/amd64/av1394\fR\fR
.ad
.RS 29n
64-bit ELF kernel module
.RE

.SH ATTRIBUTES
.sp
.LP
See \fBattributes\fR(5) for a description of the following attributes:
.sp

.sp
.TS
box;
l | l
l | l .
ATTRIBUTE TYPE  ATTRIBUTE VALUE
_
Architecture    All
_
Interface Stability     Committed
.TE

.SH SEE ALSO
.sp
.LP
\fBread\fR(2), \fBwrite\fR(2), \fBattributes\fR(5), \fBhci1394\fR(7D),
\fBiec61883\fR(7I)
.sp
.LP
\fIIEEE Std 1394-1995 Standard for a High Performance Serial Bus\fR
.sp
.LP
\fIIEC 61883 Consumer audio/video equipment - Digital interface\fR
```

```
**********************************************************
   18742 Fri Jan 10 14:01:40 2020
new/usr/src/man/man7d/dcam1394.7d
11639 some man pages show incorrect driver locations
**********************************************************
'\" te
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.TH DCAM1394 7D "Jan 10, 2020"
.TH DCAM1394 7D "May 19, 2004"
.SH NAME
dcam1394 \- 1394-based digital camera (IIDC) driver
.SH SYNOPSIS
.LP
.nf
\fB#include <sys/dcam/dcam1394_io.h>\fR
.fi

.SH DESCRIPTION
.sp
.LP
The \fBdcam1394\fR driver supports devices implementing the \fI1394 Trade
Association Digital Camera Specification\fR (also referred to as the IIDC
specification).  Only a subset of the specification is supported.
.SH READING DATA
.sp
.LP
Isochronous data is read from the driver frame-by-frame and is maintained
within the driver in a ring buffer.
.sp
.LP
Video frames are read from the isochronous input device using \fBread\fR(2).
.sp
.LP
The \fBdcam1394_frame_t\fR structure describes the frame layout and is defined
as follows:
.sp
.in +2
.nf
     struct {
          unsigned int vid_mode;
          unsigned int seq_num;
          hrtime_t     timestamp;
          unsigned char *buff;
     };
.fi
.in -2

.sp
.LP
The size to allocate for the structure is determined by the video mode for
which the camera is configured. Possible values for the vid_mode field are
listed under DCAM1394_PARAM_VID_MODE below.
.SH IOCTL REQUESTS
.sp
.LP
The following ioctl requests are supported:
.sp
.ne 2
.na
\fBDCAM1394_CMD_CAM_RESET\fR
.ad
.sp .6
.RS 4n
```



```
Reset the device.
.RE

.sp
.ne 2
.na
\fBDCAM1394_CMD_REG_READ\fR
.ad
.sp .6
.RS 4n
Read the indicated dcam/IIDC register. The argument is a pointer to a
\fBdcam1394_reg_io_t\fR structure, which is defined as follows:
.sp
.in +2
.nf
    struct {
         unsigned int offs;
         unsigned int val;
    };
.fi
.in -2

The offs field should be set to the offset of the register from which to read.
Register offset values are defined in the \fI1394 Trade Association Digital
Camera Specification\fR.
.sp
After the operation is completed, the camera register value is put in the
\fBval\fR field.
.RE

.sp
.ne 2
.na
\fBDCAM1394_CMD_REG_WRITE\fR
.ad
.sp .6
.RS 4n
Write the indicated dcam/IIDC register. The argument is a pointer to a
\fBdcam1394_reg_io_t\fR structure (described above).
.sp
The offs field should be set to the offset of the register from which to read.
The register offset values are defined in the \fI1394 Trade Association Digital
Camera Specification\fR.
.sp
The val field should be set to the value to be written to the camera register.
.RE

.sp
.ne 2
.na
\fBDCAM1394_CMD_PARAM_GET\fR
.ad
.sp .6
.RS 4n
Gets a list of parameters associated with a camera. The argument is a pointer
to a \fBdcam1394_param_list_t\fR structure (described below). The parameter
list is accessed through macros defined below.
.sp
The parameter list only supports Format 1 video formats.
The paramter list only supports Format 1 video formats.
.RE

.sp
.ne 2
.na
\fBDCAM1394_CMD_PARAM_SET\fR
```

```
.ad
.sp .6
.RS 4n
Sets a list of parameters associated with a camera. The argument is a pointer
to a \fBdcam1394_param_list_t structure\fR (described below). The parameter
list is accessed through macros defined below.
.sp
.ne 2
.na
\fBDCAM1394_CMD_FRAME_RCV_START\fR
.ad
.sp .6
.RS 4n
Start receiving video frames from the camera.
.sp
The contents of the ring buffer may be accessed by reading the isochronous
stream device.
.RE

.sp
.ne 2
.na
\fBDCAM1394_CMD_FRAME_RCV_STOP\fR
.ad
.sp .6
.RS 4n
Stop receiving frames from the camera.
.RE

.sp
.ne 2
.na
\fBDCAM1394_CMD_RING_BUFF_FLUSH\fR
.ad
.sp .6
.RS 4n
Flush the frames in the ring buffer.
.RE

.sp
.ne 2
.na
\fBDCAM1394_CMD_FRAME_SEQ_NUM_COUNT_RESET\fR
.ad
.sp .6
.RS 4n
Reset frame sequence number.
.RE

.SH PARAMETER LIST ACCESS
.sp
.LP
The parameter list is initialized and access through macros. The data type for
the parameter list is \fBdcam1394_param_list_t\fR.
.sp
.LP
The following macros are used to access the parameter list:
.sp
.ne 2
.na
\fBPARAM_LIST_INIT(param_list)\fR
```

The parameter list only supports Format 1 video formats.

The paramter list only supports Format 1 video formats.


```
.ad
.sp .6
.RS 4n
Initialize the parameter list.
.RE

.sp
.ne 2
.na
\fBPARAM_LIST_ADD(param_list, param, subparam)\fR
.ad
.sp .6
.RS 4n
Add a parameter to the list.
.RE

.sp
.ne 2
.na
\fBPARAM_LIST_REMOVE(param_list, param, subparam)\fR
.ad
.sp .6
.RS 4n
Remove a parameter from the list.
.RE

.sp
.ne 2
.na
\fBPARAM_LIST_IS_ENTRY(param_list, param, subparam)\fR
.ad
.sp .6
.RS 4n
Indicates if a specific parameter is in the list.
.RE

.sp
.ne 2
.na
\fBPARAM_VAL(param_list, param, subparam)\fR
.ad
.sp .6
.RS 4n
Value of a specified parameter.
.RE

.sp
.ne 2
.na
\fBPARAM_ERR(param_list, param, subparam)\fR
.ad
.sp .6
.RS 4n
Indicates if a specific parameter is successfully set.
.RE

.sp
.LP
When no subparam value is required, the value DCAM1394_SUBPARAM_NONE may be
used.
.SH PARAMETERS
.sp
.LP
The following parameters may appear in the list:
.sp
.ne 2
```

```
.na
\fBDCAM1394_PARAM_CAP_POWER_CTRL\fR
.ad
.sp .6
.RS 4n
Queries if the camera can be turned off and on through software. The subparam
value is ignored.
.RE

.sp
.ne 2
.na
\fBDCAM1394_PARAM_POWER\fR
.ad
.sp .6
.RS 4n
Controls or queries if the camera is powered up. Verify this feature using
DCAM1394_PARAM_CAP_POWER_CTRL before use. The subparam field is ignored.
.RE

.sp
.ne 2
.na
\fBDCAM1394_PARAM_CAP_VID_MOD\fR
.ad
.sp .6
.RS 4n
Queries if a specific video mode is supported by the camera.
.sp
subparam is one of the following and is used to determine if a specified video
mode is supported by the camera:
.sp
.in +2
.nf
  DCAM1394_SUBPARAM_VID_MODE_0
  DCAM1394_SUBPARAM_VID_MODE_YUV_444_160_120
       Video mode is 4:4:4, YUV color space, 160x120 resolution.

  DCAM1394_SUBPARAM_VID_MODE_1
  DCAM1394_SUBPARAM_VID_MODE_YUV_422_320_240
       Video mode is 4:2:2, YUV color space, 320x240 resolution.

  DCAM1394_SUBPARAM_VID_MODE_2
  DCAM1394_SUBPARAM_VID_MODE_YUV_411_640_480
       Video mode is 4:1:1, YUV color space, 640x480 resolution.

  DCAM1394_SUBPARAM_VID_MODE_3
  DCAM1394_SUBPARAM_VID_MODE_YUV_422_640_480
       Video mode is 4:2:2, YUV color space, 640x480 resolution.

  DCAM1394_SUBPARAM_VID_MODE_4
  DCAM1394_SUBPARAM_VID_MODE_RGB_640_480
       Video mode is RGB color space, 640x480 resolution.

  DCAM1394_SUBPARAM_VID_MODE_5
  DCAM1394_SUBPARAM_VID_MODE_Y_640_480
       Video mode is Y color space, 640x480 resolution.
.fi
.in -2

.RE

.sp
.ne 2
.na
\fBDCAM1394_PARAM_VID_MODE\fR
```



```
.ad
.sp .6
.RS 4n
Controls or queries the current video mode of the camera.  The subparam field
is ignored. When selecting the video mode, it should be compatible with the
capability of the camera, which may be determined by checking the
DCAM1394_PARAM_CAP_VID_MODE parameter.
.sp
The value of this parameter may be one of the following:
.sp
.in +2
.nf
  DCAM1394_VID_MODE_0
  DCAM1394_VID_MODE_YUV_444_160_120
       Video mode is 4:4:4, YUV color space, 160x120 resolution.

  DCAM1394_VID_MODE_1
  DCAM1394_VID_MODE_YUV_422_320_240
       Video mode is 4:2:2, YUV color space, 320x240 resolution.

  DCAM1394_VID_MODE_2
  DCAM1394_VID_MODE_YUV_411_640_480
       Video mode is 4:1:1, YUV color space, 640x480 resolution.

  DCAM1394_VID_MODE_3
  DCAM1394_VID_MODE_YUV_422_640_480
       Video mode is 4:2:2, YUV color space, 640x480 resolution.

  DCAM1394_VID_MODE_4
  DCAM1394_VID_MODE_RGB_640_480
       Video mode is RGB color space, 640x480 resolution.

  DCAM1394_VID_MODE_5
  DCAM1394_VID_MODE_Y_640_480
       Video mode is Y color space, 640x480 resolution.
.fi
.in -2

.RE

.sp
.ne 2
.na
\fBDCAM1394_PARAM_CAP_FRAME_RATE_VID_MODE_0\fR
.ad
.sp .6
.RS 4n
Queries if a specific frame rate is supported by the camera in video mode 0
(4:4:4, YUV, 160x120).
.sp
subparam is one of the following and used to determine if a specified frame
rate is supported by the camera:
.sp
.in +2
.nf
          DCAM1394_SUBPARAM_FRAME_RATE_0
          DCAM1394_SUBPARAM_FRAME_RATE_3_75_FPS
               Frame rate is 3.75 frames/second.

          DCAM1394_SUBPARAM_FRAME_RATE_1
          DCAM1394_SUBPARAM_FRAME_RATE_7_5_FPS
               Frame rate is 7.5 frames/second.

          DCAM1394_SUBPARAM_FRAME_RATE_2
          DCAM1394_SUBPARAM_FRAME_RATE_15_FPS
               Frame rate is 15 frames/second.
```

```
379           DCAM1394_SUBPARAM_FRAME_RATE_3
380           DCAM1394_SUBPARAM_FRAME_RATE_30_FPS
381                Frame rate is 30 frames/second.

383           DCAM1394_SUBPARAM_FRAME_RATE_4
384           DCAM1394_SUBPARAM_FRAME_RATE_60_FPS
385                Frame rate is 60 frames/second.
386 .fi
387 .in -2

389 .RE

391 .sp
392 .ne 2
393 .na
394 \fBDCAM1394_PARAM_CAP_FRAME_RATE_VID_MODE_1\fR
395 .ad
396 .sp .6
397 .RS 4n
398 Queries if a specific frame rate is supported by the camera in video mode 1
399 (4:2:2, YUV, 320x240). See DCAM1394_PARAM_CAP_FRAME_RATE_VID_MODE_0 for a
400 listing of valid subparam values.
401 .RE

403 .sp
404 .ne 2
405 .na
406 \fBDCAM1394_PARAM_CAP_FRAME_RATE_VID_MODE_2\fR
407 .ad
408 .sp .6
409 .RS 4n
410 Queries if a specific frame rate is supported by the camera in video mode 2
411 (4:1:1, YUV, 640x480). See DCAM1394_PARAM_CAP_FRAME_RATE_VID_MODE_0 for a
412 listing of valid subparam values.
413 .RE

415 .sp
416 .ne 2
417 .na
418 \fBDCAM1394_PARAM_CAP_FRAME_RATE_VID_MODE_3\fR
419 .ad
420 .sp .6
421 .RS 4n
422 Queries if a specific frame rate is supported by the camera in video mode 3
423 (4:2:2, YUV, 640x480). See DCAM1394_PARAM_CAP_FRAME_RATE_VID_MODE_0 for a
424 listing of valid subparam values.
425 .RE

427 .sp
428 .ne 2
429 .na
430 \fBDCAM1394_PARAM_CAP_FRAME_RATE_VID_MODE_4\fR
431 .ad
432 .sp .6
433 .RS 4n
434 Queries if a specific frame rate is supported by the camera in video mode 4.
435 (RGB, 640x480). See DCAM1394_PARAM_CAP_FRAME_RATE_VID_MODE_0 for a listing of
436 valid subparam values.
437 .RE

439 .sp
440 .ne 2
441 .na
442 \fBDCAM1394_PARAM_CAP_FRAME_RATE_VID_MODE_5\fR
443 .ad
```



```
444 .sp .6
445 .RS 4n
446 Queries if a specific frame rate is supported by the camera in video mode 5.
447 (Y, 640x480). See DCAM1394_PARAM_CAP_FRAME_RATE_VID_MODE_0 for a listing of
448 valid subparam values.
449 .RE

451 .sp
452 .ne 2
453 .na
454 \fBDCAM1394_PARAM_FRAME_RATE\fR
455 .ad
456 .sp .6
457 .RS 4n
458 Controls or queries the current frame rate of the camera.  The subparam field
459 is ignored. When selecting a frame rate, it should be compatible with the
460 capability of the camera, which can be determined by querying one of the frame
461 rate capability parameters above.
462 .sp
463 The value of this parameter may be one of the following:
464 .sp
465 .in +2
466 .nf
467           DCAM1394_FRAME_RATE_0
468           DCAM1394_3_75_FPS
469                The frame rate is 3.75 frames per second.

471           DCAM1394_FRAME_RATE_1
472           DCAM1394_7_5_FPS
473                The frame rate is 7.5 frames per second.

475           DCAM1394_FRAME_RATE_2
476           DCAM1394_15_FPS
477                The frame rate is 15 frames per second.

479           DCAM1394_FRAME_RATE_3
480           DCAM1394_30_FPS
481                The frame rate is 30 frames per second.

483           DCAM1394_FRAME_RATE_4
484           DCAM1394_60_FPS
485                The frame rate is 60 frames per second.
486 .fi
487 .in -2

489 .RE

491 .sp
492 .ne 2
493 .na
494 \fBDCAM1394_PARAM_RING_BUFF_CAPACITY\fR
495 .ad
496 .sp .6
497 .RS 4n
498 Controls or queries the number of frames that the ring buffer may hold. This
499 value can range between 2 and 30. The subparam field is ignored.
500 .RE

502 .sp
503 .ne 2
504 .na
505 \fBDCAM1394_PARAM_RING_BUFF_NUM_FRAMES_READY\fR
506 .ad
507 .sp .6
508 .RS 4n
509 Queries the number of frames in the ring buffer ready to be accessed. The
```

```
510 subparam field is ignored.
511 .RE

513 .sp
514 .ne 2
515 .na
516 \fBDCAM1394_PARAM_RING_BUFF_READ_PTR_INCR\fR
517 .ad
518 .sp .6
519 .RS 4n
520 Controls or queries the number of bytes to advance the read pointer as it
521 consumes data from the ring buffer. The subparam field is ignored.
522 .RE

524 .sp
525 .ne 2
526 .na
527 \fBDCAM1394_PARAM_FRAME_NUM_BYTES\fR
528 .ad
529 .sp .6
530 .RS 4n
531 Queries the number of bytes in a frame at the current video mode. The subparam
532 field is ignored.
533 .RE

535 .sp
536 .ne 2
537 .na
538 \fBDCAM1394_PARAM_STATUS\fR
539 .ad
540 .sp .6
541 .RS 4n
542 Queries the parameter status. The subparam field is ignored.
543 .sp
544 The values for the parameter status is a bit field with the following values
545 possibly set:
546 .sp
547 .ne 2
548 .na
549 \fBDCAM1394_STATUS_FRAME_RCV_DONE\fR
550 .ad
551 .sp .6
552 .RS 4n
553 Frame successfully received.
554 .RE

556 .sp
557 .ne 2
558 .na
559 \fBDCAM1394_STATUS_RING_BUFF_LOST_FRAME\fR
560 .ad
561 .sp .6
562 .RS 4n
563 A frame has been lost while processing the ring buffer.
564 .RE

566 .sp
567 .ne 2
568 .na
569 \fBDCAM1394_STATUS_PARAM_CHANGE\fR
570 .ad
571 .sp .6
572 .RS 4n
573 A parameter has been changed.
574 .RE
```



```
576 .sp
577 .ne 2
578 .na
579 \fBDCAM1394_STATUS_FRAME_SEQ_NUM_COUNT_OVERFLOW\fR
580 .ad
581 .sp .6
582 .RS 4n
583 Frame sequence number has reached its maximum possible value and has
584 overflowed.
585 .RE

587 .sp
588 .ne 2
589 .na
590 \fBDCAM1394_STATUS_CAM_UNPLUG\fR
591 .ad
592 .sp .6
593 .RS 4n
594 Camera has been unplugged.
595 .RE

597 .RE

599 .sp
600 .ne 2
601 .na
602 \fBDCAM1394_PARAM_BRIGHTNESS\fR
603 .ad
604 .sp .6
605 .RS 4n
606 Query or control a camera feature. This feature queries or controls the
607 brightness of the camera.
608 .sp
609 .ne 2
610 .na
611 \fBDCAM1394_SUBPARAM_PRESENCE\fR
612 .ad
613 .sp .6
614 .RS 4n
615 Indicates if the feature is available.
616 .RE

618 .sp
619 .ne 2
620 .na
621 \fBDCAM1394_SUBPARAM_CAP_ON_OFF\fR
622 .ad
623 .sp .6
624 .RS 4n
625 Indicates if the feature may be enabled and disabled. May only be queried.
626 .RE

628 .sp
629 .ne 2
630 .na
631 \fBDCAM1394_SUBPARAM_ON_OFF\fR
632 .ad
633 .sp .6
634 .RS 4n
635 Indicates if the feature is enabled.
636 .RE

638 .sp
639 .ne 2
640 .na
641 \fBDCAM1394_SUBPARAM_CAP_CTRL_AUTO\fR
```

```
642 .ad
643 .sp .6
644 .RS 4n
645 Indicates if the automatic control of this feature is supported by the camera.
646 May only be queried.
647 .RE

649 .sp
650 .ne 2
651 .na
652 \fBDCAM1394_SUBPARAM_CAP_CTRL_MANUAL\fR
653 .ad
654 .sp .6
655 .RS 4n
656 Indicates if the manual control of this feature is supported by the camera. May
657 only be queried.
658 .RE

660 .sp
661 .ne 2
662 .na
663 \fBDCAM1394_SUBPARAM_CTRL_MODE\fR
664 .ad
665 .sp .6
666 .RS 4n
667 Indicates if the feature is in auto or manual mode.
668 .RE

670 .sp
671 .ne 2
672 .na
673 \fBDCAM1394_SUBPARAM_MIN_VAL\fR
674 .ad
675 .sp .6
676 .RS 4n
677 Minimum value of the feature. May only be queried.
678 .RE

680 .sp
681 .ne 2
682 .na
683 \fBDCAM1394_SUBPARAM_MAX_VAL\fR
684 .ad
685 .sp .6
686 .RS 4n
687 Maximum value of the feature. May only be queried.
688 .RE

690 .sp
691 .ne 2
692 .na
693 \fBDCAM1394_SUBPARAM_VALUE\fR
694 .ad
695 .sp .6
696 .RS 4n
697 Current value of the feature.
698 .RE

700 .sp
701 .ne 2
702 .na
703 \fBDCAM1394_SUBPARAM_CAP_READ\fR
704 .ad
705 .sp .6
706 .RS 4n
707 Indicates if the feature may be read. May only be                queried.
```



```
708 .RE

710 .RE

712 .sp
713 .ne 2
714 .na
715 \fBDCAM1394_PARAM_EXPOSURE\fR
716 .ad
717 .sp .6
718 .RS 4n
719 Query or control a camera feature. This feature queries or controls the
720 exposure of the camera. The subparams supported by this feature are described
721 under DCAM1394_PARAM_BRIGHTNESS.
722 .RE

724 .sp
725 .ne 2
726 .na
727 \fBDCAM1394_PARAM_SHARPNESS\fR
728 .ad
729 .sp .6
730 .RS 4n
731 Query or control a camera feature. This feature queries or controls the
732 sharpness of the camera. The subparams supported by this feature are described
733 under DCAM1394_PARAM_BRIGHTNESS.
734 .RE

736 .sp
737 .ne 2
738 .na
739 \fBDCAM1394_PARAM_WHITE_BALANCE\fR
740 .ad
741 .sp .6
742 .RS 4n
743 Query or control a camera feature. This feature queries or controls the white
744 balance of the camera. The subparams supported by this feature are described
745 under DCAM1394_PARAM_BRIGHTNESS, except for DCAM1394_SUBPARAM_VALUE.
746 DCAM1394_SUBPARAM_VALUE is replaced by two distinct subparams.
747 .sp
748 .ne 2
749 .na
750 \fBDCAM1394_SUBPARAM_U_VALUE\fR
751 .ad
752 .RS 29n
753 U or B component of the white balance.
754 .RE

756 .sp
757 .ne 2
758 .na
759 \fBDCAM1394_SUBPARAM_V_VALUE\fR
760 .ad
761 .RS 29n
762 V or R component of the white balance.
763 .RE

765 .RE

767 .sp
768 .ne 2
769 .na
770 \fBDCAM1394_PARAM_HUE\fR
771 .ad
772 .sp .6
773 .RS 4n
```

```
774 Query or control a camera feature. This feature queries or controls the hue of
775 the camera. The subparams supported by this feature are described under
776 DCAM1394_PARAM_BRIGHTNESS.
777 .RE

779 .sp
780 .ne 2
781 .na
782 \fBDCAM1394_PARAM_SATURATION\fR
783 .ad
784 .sp .6
785 .RS 4n
786 Query or control a camera feature. This feature queries or controls the
787 saturation of the camera. The subparams supported by this feature are described
788 under DCAM1394_PARAM_BRIGHTNESS.
789 .RE

791 .sp
792 .ne 2
793 .na
794 \fBDCAM1394_PARAM_GAMMA\fR
795 .ad
796 .sp .6
797 .RS 4n
798 Query or control a camera feature. This feature queries or controls the gamma
799 of the camera. The subparams supported by this feature are described under
800 DCAM1394_PARAM_BRIGHTNESS.
801 .RE

803 .sp
804 .ne 2
805 .na
806 \fBDCAM1394_PARAM_SHUTTER\fR
807 .ad
808 .sp .6
809 .RS 4n
810 Query or control a camera feature. This feature queries or controls the
811 sharpness of the camera. The subparams supported by this feature are described
812 under DCAM1394_PARAM_BRIGHTNESS.
813 .RE

815 .sp
816 .ne 2
817 .na
818 \fBDCAM1394_PARAM_GAIN\fR
819 .ad
820 .sp .6
821 .RS 4n
822 Query or control a camera feature. This feature queries or controls the gain of
823 the camera. The subparams supported by this feature are described under
824 DCAM1394_PARAM_BRIGHTNESS.
825 .RE

827 .sp
828 .ne 2
829 .na
830 \fBDCAM1394_PARAM_IRIS\fR
831 .ad
832 .sp .6
833 .RS 4n
834 Query or control a camera feature. This feature queries or controls the iris of
835 the camera. The subparams supported by this feature are described under
836 DCAM1394_PARAM_BRIGHTNESS.
837 .RE

839 .sp
```



```
840 .ne 2
841 .na
842 \fBDCAM1394_PARAM_FOCUS\fR
843 .ad
844 .sp .6
845 .RS 4n
846 Query or control a camera feature. This feature queries or controls the focus
847 of the camera. The subparams supported by this feature are described under
848 DCAM1394_PARAM_BRIGHTNESS.
849 .RE

851 .sp
852 .ne 2
853 .na
854 \fBDCAM1394_PARAM_ZOOM\fR
855 .ad
856 .sp .6
857 .RS 4n
858 Query or control a camera feature. This feature queries or controls the zoom of
859 the camera. The subparams supported by this feature are described under
860 DCAM1394_PARAM_BRIGHTNESS.
861 .RE

863 .sp
864 .ne 2
865 .na
866 \fBDCAM1394_PARAM_PAN\fR
867 .ad
868 .sp .6
869 .RS 4n
870 Query or control a camera feature. This feature queries or controls the pan of
871 the camera. The subparams supported by this feature are described under
872 DCAM1394_PARAM_BRIGHTNESS.
873 .RE

875 .sp
876 .ne 2
877 .na
878 \fBDCAM1394_PARAM_TILT\fR
879 .ad
880 .sp .6
881 .RS 4n
882 Query or control a camera feature. This feature queries or controls the tilt of
883 the camera.The subparams supported by this feature are described under
884 DCAM1394_PARAM_BRIGHTNESS.
885 .RE

887 .SH DEVICE SPECIAL FILES
899 .sp
888 .ne 2
889 .na
890 \fB/dev/dcam\fIN\fR\fR
902 \fB\fB/dev/dcam\fIN\fR\fR\fR
891 .ad
892 .RS 17n
893 Device node for isochronous input from camera.
894 .RE

896 .sp
897 .ne 2
898 .na
899 \fB/dev/dcamctl\fIN\fR\fR
911 \fB\fB/dev/dcamctl\fIN\fR\fR\fR
900 .ad
901 .RS 17n
902 Device node for camera control.
```

```
 903 .RE

 905 .SH FILES
 918 .sp
 906 .ne 2
 907 .na
 908 \fB/kernel/drv/sparcv9/dcam1394\fR
 921 \fB\fBkernel/drv/sparcv9/dcam1394\fR\fR
 909 .ad
 910 .sp .6
 911 .RS 4n
 912 Device driver (SPARC)
 925 64-bit ELF kernel module.
 913 .RE

 915 .sp
 916 .ne 2
 917 .na
 918 \fB/kernel/drv/amd64/dcam1394\fR
 931 \fB\fBkernel/drv/dcam1394\fR\fR
 919 .ad
 920 .sp .6
 921 .RS 4n
 922 Device driver (x86)
 935 32-bit ELF kernel module.
 923 .RE

 925 .SH ATTRIBUTES
 939 .sp
 940 .LP
 926 See \fBattributes\fR(5) for descriptions of the following attributes:
 927 .sp

 929 .sp
 930 .TS
 931 box;
 932 c | c
 933 l | l .
 934 ATTRIBUTE TYPE  ATTRIBUTE VALUE
 935 _
 936 Interface Stability     Evolving
 937 .TE

 939 .SH SEE ALSO
 955 .sp
 956 .LP
 940 \fBattributes\fR(5), \fBhci1394\fR(7D)
 941 .sp
 942 .LP
 943 \fI1394 Trade Association Digital Camera Specification, Version 1.04 - 1996\fR
 944 .sp
 945 .LP
 946 \fIIEEE Std 1394-2000 Standard for a High Performance Serial Bus - 2000\fR
```

```
**********************************************************
   16313 Fri Jan 10 14:01:40 2020
new/usr/src/man/man7d/ecpp.7d
11639 some man pages show incorrect driver locations
**********************************************************
'\" te
.\"  Copyright (c) 2004, Sun Microsystems, Inc.  All Rights Reserved
.\" The contents of this file are subject to the terms of the Common Development
.\" You can obtain a copy of the license at usr/src/OPENSOLARIS.LICENSE or http:
.\" When distributing Covered Code, include this CDDL HEADER in each file and in
.TH ECPP 7D "Jan 10, 2020"
.TH ECPP 7D "May 13, 2017"
.SH NAME
ecpp \- IEEE 1284 compliant parallel port driver
.SH SYNOPSIS
.LP
.nf
#include <sys/types.h>
.fi

.LP
.nf
#include <sys/ecppio.h>
.fi

.LP
.nf
ecpp@unit-address
.fi

.SH DESCRIPTION
.LP
The \fBecpp\fR driver provides a bi-directional interface to \fIIEEE 1284\fR
compliant devices as well as a forward single-directional interface to
Centronics devices. In addition to the Centronics protocol, the \fBecpp\fR
driver supports the \fIIEEE 1284\fRCompatibility, Nibble, and ECP protocols.
\fBECPP_COMPAT_MODE\fR and \fBECPP_CENTRONICS\fR modes of operation have
logically identical handshaking protocols, however devices that support
\fBECPP_COMPAT_MODE\fR are \fIIEEE 1284\fR compliant devices. \fIIEEE 1284\fR
compliant devices support at least \fBECPP_COMPAT_MODE\fR and
\fBECPP_NIBBLE_MODE\fR. Centronics devices support only \fBECPP_CENTRONICS\fR
mode.
.sp
.LP
By default, \fBECPP_COMPAT_MODE\fR devices have a strobe handshaking pulse
width of 500ns. For this mode, forward data transfers are conducted by DMA. By
default, the strobe pulse width for \fBECPP_CENTRONICS\fR devices is two
microseconds. Forward transfers for these devices are managed through PIO. The
default characteristics for both \fBECPP_COMPAT_MODE\fR and
\fBECPP_CENTRONICS\fR devices may be changed through tunable variables defined
in \fBecpp.conf\fR.
.sp
.LP
The \fBecpp\fR driver is an \fIexclusive-use\fR device, meaning that if the
device is already open, subsequent opens fail with \fBEBUSY\fR.
.SS "Default Operation"
.LP
Each time the \fBecpp\fR device is opened, the device is marked as \fBEBUSY\fR
and the configuration variables are set to their default values. The
\fBwrite_timeout\fR period is set to 90 seconds.
.sp
.LP
The driver sets the mode variable according to the following algorithm: The
driver initially attempts to negotiate the link into \fBECPP_ECP_MODE\fR during
\fBopen\fR(2). If it fails, the driver tries to negotiate into
\fBECPP_NIBBLE_MODE\fR mode. If that fails, the driver operates in
```



```
\fBECPP_CENTRONICS\fR mode. Upon successfully opening the device, \fIIEEE
1284\fR compliant devices will be left idle in either reverse idle phase of
\fBECPP_ECP_MODE\fR or in \fBECPP_NIBBLE_MODE\fR. Subsequent calls to
\fBwrite\fR(2) invokes the driver to move the link into either
\fBECPP_COMPAT_MODE\fR or the forward phase of \fBECPP_ECP_MODE\fR. After the
transfer completes, the link returns to idle state.
.sp
.LP
The application may attempt to negotiate the device into a specific mode or set
the \fBwrite_timeout\fR values through the \fBECPPIOC_SETPARMS\fR
\fBioctl\fR(2) call. For mode negotiation to be successful, both the host
workstation and the peripheral must support the requested mode.
.SS "Tunables"
Characteristics of the \fBecpp\fR driver may be tuned by the variables
.LP
 Characteristics of the \fBecpp\fR driver may be tuned by the variables
described in \fB/kernel/drv/ecpp.conf\fR. These variables are read by the
kernel during system startup. To tune the variables, edit the \fBecpp.conf\fR
file and invoke \fBupdate_drv\fR(1M) to have the kernel read the file again.
.sp
.LP
Some Centronics peripherals and certain \fIIEEE 1284\fR compatible peripherals
will not operate with the parallel port operating in a fast handshaking mode.
If printing problems occur, set "fast-centronics" and "fast-1284-compatible" to
"false." See \fB/kernel/drv/ecpp.conf\fR for more information.
.SS "Read/Write Operation"
.LP
The \fBecpp\fR driver is a full duplex STREAMS device driver. While an
application is writing to an \fIIEEE 1284\fR compliant device, another thread
may read from it.
.SS "Write Operation"
.LP
A \fBwrite\fR(2) operation returns the number of bytes successfully written to
the stream head. If a failure occurs while a Centronics device is transferring
data, the content of the status bits will be captured at the time of the error
and can be retrieved by the application program using the \fBBPPIOC_GETERR\fR
\fBioctl\fR(2) call. The captured status information is overwritten each time
an attempted transfer or a \fBBPPIOC_TESTIO\fR \fBioctl\fR(2) occurs.
.SS "Read Operation"
.LP
If a failure or error condition occurs during a \fBread\fR(2), the number of
bytes successfully read is returned (short read). When attempting to read a
port that has no data currently available, \fBread\fR(2) returns \fB0\fR if
\fBO_NDELAY\fR is set. If \fBO_NONBLOCK\fR is set, \fBread\fR(2) returns
\fB-1\fR and sets errno to \fBEAGAIN.\fR If \fBO_NDELAY\fR and \fBO_NONBLOCK\fR
are clear, \fBread\fR(2) blocks until data become available.
.SH IOCTLS
.LP
The \fBioctl\fR(2) calls described below are supported. Note that when
\fBecpp\fR is transferring data, the driver waits until the data has been sent
to the device before processing the \fBioctl\fR(2) call.
.sp
.LP
The ecpp driver supports \fBprnio\fR(7I) interfaces.
.LP
Note -
.sp
.RS 2
The \fBPRNIOC_RESET\fR command toggles the \fBnInit\fR signal for 2 ms,
followed by default negotiation.
.RE
.sp
.LP
The following \fBioctl\fR(2) calls are supported for backward compatibility and
are not recommended for new applications:
.sp
```

```
118 .ne 2
119 .na
120 \fB\fBECPPIOC_GETPARMS\fR\fR
121 .ad
122 .RS 20n
123 Get current transfer parameters. The argument is a pointer to a struct
124 \fBecpp_transfer_parms\fR. See below for a description of the elements of this
125 structure. If no parameters have been configured since the device was opened,
126 the structure will be set to its default configuration. See Default Operation
127 above for more information.
128 .RE

130 .sp
131 .ne 2
132 .na
133 \fB\fBECPPIOC_SETPARMS\fR\fR
134 .ad
135 .RS 20n
136 Set transfer parameters. The argument is a pointer to a struct
137 \fBecpp_transfer_parms\fR. If a parameter is out of range, \fBEINVAL\fR is
138 returned. If the peripheral or host device cannot support the requested mode,
139 \fBEPROTONOSUPPORT\fR is returned. See below for a description of
140 \fBecpp_transfer_parms\fR and its valid parameters.
141 .sp
142 The Transfer Parameters Structure is defined in <\fBsys/ecppio.h\fR>.
143 .sp
144 .in +2
145 .nf
146 struct ecpp_transfer_parms {
147     int  write_timeout;
148     int  mode;
149 };
_____unchanged_portion_omitted_
315 .fi
316 .in -2

318 The status register is read-only. The \fBECPPIOC_SETREGS\fR ioctl has no affect
319 on this register. Valid bit values for dsr are: \fBECPP_nERR\fR,
320 \fBECPP_SLCT\fR, \fBECPP_PE\fR, \fBECPP_nACK\fR, \fBECPP_nBUSY\fR. All other
321 bits are reserved and always return \fB1\fR.
322 .sp
323 The control register is read/write. Valid bit values for dcr are:
324 \fBECPP_STB\fR, \fBECPP_AFX\fR, \fBECPP_nINIT\fR, \fBECPP_SLCTIN\fR. All other
325 bits are reserved. Reading reserved bits always return 1. An attempt to write
326 0s into these bits results in \fBEINVAL\fR.
327 .RE

329 .SH DEVICE SPECIAL FILES
330 .ne 2
331 .na
332 \fB\fB/dev/lp\fIN\fR\fR\fR
333 .ad
334 .RS 19n
335 x86 only. (Backwards compatibility with former \fBlp\fR(7D) devices.)
343 Solaris x86 only. (Backwards compatibility with former \fBlp\fR(7D) devices.)
336 .RE

338 .sp
339 .ne 2
340 .na
341 \fB\fB/dev/printers/\fIN\fR\fR\fR
342 .ad
343 .RS 19n
344 1284 compliant parallel port device special files appears in both namespaces.
345 .RE
```



```
347 .SH FILES
348 .ne 2
349 .na
350 \fB/kernel/drv/sparcv9/ecpp\fR
358 \fB\fBkernel/drv/ecpp\fR\fR
351 .ad
352 .sp .6
353 .RS 4n
354 Device driver (SPARC)
362 32-bit ELF kernel module
355 .RE

357 .sp
358 .ne 2
359 .na
360 \fB/kernel/drv/amd64/ecpp\fR
368 \fB\fBkernel/drv/sparcv9/ecpp\fR\fR
361 .ad
362 .sp .6
363 .RS 4n
364 Device driver (x86)
372 64-bit SPARC ELF kernel module
365 .RE

367 .sp
368 .ne 2
369 .na
370 \fB/kernel/drv/ecpp.conf\fR
378 \fB\fBkernel/drv/amd64/ecpp\fR\fR
371 .ad
372 .sp .6
373 .RS 4n
374 Driver configuration file
382 64-bit x86 ELF kernel module
375 .RE

385 .sp
386 .ne 2
387 .na
388 \fB\fBkernel/drv/ecpp.conf\fR\fR
389 .ad
390 .sp .6
391 .RS 4n
392 driver configuration file
393 .RE

395 .sp
396 .ne 2
397 .na
398 \fB\fBkernel/drv/sparcv9/ecpp.conf\fR\fR
399 .ad
400 .sp .6
401 .RS 4n
402 driver configuration file for 64-bit SPARC
403 .RE

405 .sp
406 .ne 2
407 .na
408 \fB\fBkernel/drv/amd64/ecpp.conf\fR\fR
409 .ad
410 .sp .6
411 .RS 4n
412 driver configuration file for 64-bit x86
413 .RE
```

```
.SH ERRORS
.ne 2
.na
\fB\fBEBADF\fR\fR
.ad
.RS 10n
The device is opened for write-only access and a read is attempted, or the
device is opened for read-only access and a write is attempted.
.RE

.sp
.ne 2
.na
\fB\fBEBUSY\fR\fR
.ad
.RS 10n
The device has been opened and another open is attempted. An attempt has been
made to unload the driver while one of the units is open.
.RE

.sp
.ne 2
.na
\fB\fBEINVAL\fR\fR
.ad
.RS 10n
A \fBECPPIOC_SETPARMS\fR \fBioctl()\fR is attempted with an out-of-range value
in the \fBecpp_transfer_parms\fR structure. A \fBECPPIOC_SETREGS\fR
\fBioctl()\fR is attempted with an invalid value in the \fBecpp_regs\fR
structure. An \fBioctl()\fR is attempted with an invalid value in the command
argument.An invalid command argument is received during \fBmodload\fR(1M) or
\fBmodunload\fR(1M).
.RE

.sp
.ne 2
.na
\fB\fBEIO\fR\fR
.ad
.RS 10n
The driver encountered a bus error when attempting an access. A read or write
did not complete properly, due to a peripheral error or a transfer timeout.
.RE

.sp
.ne 2
.na
\fB\fBENXIO\fR\fR
.ad
.RS 10n
The driver has received an open request for a unit for which the attach failed.
The driver has received a write request for a unit which has an active
peripheral error.
.RE

.SH ATTRIBUTES
.LP
See \fBattributes\fR(5) for descriptions of the following attributes:
.sp

.sp
.TS
box;
c | c
l | l .
ATTRIBUTE TYPE  ATTRIBUTE VALUE
```



```
_
Architecture    PCI-based systems
_
        ISA-based systems (x86)
_
Interface stability     Evolving
.TE

.SH SEE ALSO
.LP
\fBmodload\fR(1M), \fBmodunload\fR(1M), \fBupdate_drv\fR(1M), \fBioctl\fR(2),
\fBopen\fR(2), \fBread\fR(2), \fBwrite\fR(2), \fBattributes\fR(5),
\fBbpp\fR(7D), \fBusbprn\fR(7D), \fBprnio\fR(7I), \fBstreamio\fR(7I)
.sp
.LP
\fIIEEE Std 1284-1994\fR
.SH DIAGNOSTICS
.ne 2
.na
\fBParallel port controller not supported\fR
.ad
.sp .6
.RS 4n
Driver does not support parallel port controller on the given host. Attach
failed.
.RE
```

```
**********************************************************
    1750 Fri Jan 10 14:01:40 2020
new/usr/src/man/man7d/fcoe.7d
11639 some man pages show incorrect driver locations
**********************************************************
'\" te
.\" The contents of this file are subject to the terms of the Common Development
.\"  See the License for the specific language governing permissions and limitat
.\" fields enclosed by brackets "[]" replaced with your own identifying informat
.\" Copyright (c) 2009, Sun Microsystems, Inc. All Rights Reserved
.\" Copyright 2020 Peter Tribble.
.TH FCOE 7D "Jan 10, 2020"
.TH FCOE 7D "Mar 18, 2009"
.SH NAME
fcoe \- fibre channel over Ethernet transport driver
.SH DESCRIPTION
.sp
.LP
The \fBfcoe\fR driver is a pseudo nexus driver which supports the
transportation of FCoE encapsulated frames. FCoE Ethernet frame will
transportation of FCoE encapsualted frames. FCoE Ethernet frame will
encapsulate the raw Fibre Channel frame.
.sp
.LP
The \fBfcoe\fR driver interfaces with FCoE target mode device driver,
\fBfcoet\fR(7D).
.SH FILES
.sp
.ne 2
.na
\fB/kernel/drv/amd64/fcoe\fR
\fB\fB/kernel/drv/fcoe\fR\fR
.ad
.RS 26n
Device driver (x86)
32-bit ELF kernel module (x86)
.RE

.sp
.ne 2
.na
\fB/kernel/drv/sparcv9/fcoe\fR
\fB\fB/kernel/drv/amd64/fcoe\fR\fR
.ad
.RS 26n
Device driver (SPARC)
64-bit ELF kernel module (x86)
.RE

.sp
.ne 2
.na
\fB\fBkernel/drv/sparcv\fR\fR
.ad
.RS 26n
64-bit ELF kernel module (SPARC)
.RE

.SH ATTRIBUTES
.sp
.LP
See \fBattributes\fR(5) for a description of the following attribute:
.sp

.sp
.TS
```



```
box;
l | l
l | l .
ATTRIBUTE TYPE  ATTRIBUTE VALUE
_
Architecture    SPARC, x86
.TE

.SH SEE ALSO
.sp
.LP
\fBdriver.conf\fR(4), \fBattributes\fR(5), \fBfcoet\fR(7D)
.sp
.LP
\fIWriting Device Drivers\fR
.sp
.LP
\fIANSI X3.269-1996, Fibre Channel Protocol for SCSI (FCP)\fR
```

```
**********************************************************
    1966 Fri Jan 10 14:01:40 2020
new/usr/src/man/man7d/fcoei.7d
11639 some man pages show incorrect driver locations
**********************************************************
'\" te
.\" Copyright (c) 2009, Sun Microsystems, Inc. All Rights Reserved
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.\" below this CDDL HEADER, with the fields enclosed by brackets "[]" replaced w
.TH FCOEI 7D "Jan 10, 2020"
.TH FCOEI 7D "Sep 11, 2009"
.SH NAME
fcoei \- Fibre Channel Over Ethernet Initiator Mode Driver
.SH SYNOPSIS
.sp
.in +2
.nf
fcoei@port,0
.fi
.in -2

.SH DESCRIPTION
.sp
.LP
The \fBfcoei\fR driver is a pseudo device driver which encapsulates the raw
Fibre Channel frames into FCoE ethernet frames, or decapsulates FC frames from
FCoE ethernet frames. The supported FC frames include extended/basic link
services, common transport frames and initiator mode FCP frames.
.sp
.LP
The \fBfcoei\fR driver interfaces with the Sun Fibre Channel port driver,
\fBfp\fR(7D), and the FCoE transport driver, \fBfcoe\fR(7D).
.SH FILES
.sp
.ne 2
.na
\fB/kernel/drv/amd64/fcoei\fR
\fB\fB/kernel/drv/fcoei\fR\fR
.ad
.RS 27n
Device driver (x86)
32-bit ELF kernel module (x86)
.RE

.sp
.ne 2
.na
\fB/kernel/drv/sparcv9/fcoei\fR
\fB\fB/kernel/drv/amd64/fcoei\fR\fR
.ad
.RS 27n
Device driver (SPARC)
64-bit ELF kernel module (x86)
.RE

.sp
.ne 2
.na
\fB\fBkernel/drv/sparcv/fcoei\fR\fR
.ad
.RS 27n
64-bit ELF kernel module (SPARC)
.RE

.SH ATTRIBUTES
.sp
```



```
.LP
See \fBattributes\fR(5) for a description of the following attribute:
.sp

.sp
.TS
box;
c | c
l | l .
ATTRIBUTE TYPE  ATTRIBUTE VALUE
_
Architecture    SPARC, x86
.TE

.SH SEE ALSO
.sp
.LP
\fBdriver.conf\fR(4), \fBattributes\fR(5), \fBfcoe\fR(7D), \fBfcoet\fR(7D),
\fBfp\fR(7D)
.sp
.LP
\fIWriting Device Drivers\fR
.sp
.LP
\fIANSI X3.269-1996, Fibre Channel Protocol for SCSI (FCP)\fR
```

```
**********************************************************
    1874 Fri Jan 10 14:01:41 2020
new/usr/src/man/man7d/fcoet.7d
11639 some man pages show incorrect driver locations
**********************************************************
```

```
'\" te
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.\"  See the License for the specific language governing permissions and limitat
.\" the fields enclosed by brackets "[]" replaced with your own identifying info
.\" Copyright (c) 2009, Sun Microsystems, Inc. All Rights Reserved
.TH FCOET 7D "Jan 10, 2020"
.TH FCOET 7D "Mar 18, 2009"
.SH NAME
fcoet \- fibre channel over Ethernet target mode driver
.SH DESCRIPTION
.sp
.LP
The \fBfcoet\fR driver is a pseudo device driver which encapsulates the raw
Fibre Channel frames into FCoE Ethernet frames, or decapsulates FC frames from
FCoE Ethernet frames. The supported FC frames contain extended/basic link
services, common transport frames and target mode FCP frames.
.sp
.LP
The \fBfcoet\fR driver interfaces with COMSTAR FC transport driver, \fBfct\fR,
The \fBfcoet\fR driver interfaces with COMSTAR FC transport driver,\fBfct\fR,
and FCoE transport driver, \fBfcoe\fR(7D).
.SH FILES
.sp
.ne 2
.na
\fB/kernel/drv/amd64/fcoet\fR
\fB\fB/kernel/drv/fcoet\fR\fR
.ad
.RS 29n
Device driver (x86)
32-bit ELF kernel module (x86)
.RE

.sp
.ne 2
.na
\fB/kernel/drv/sparcv9/fcoet\fR
\fB\fB/kernel/drv/amd64/fcoet\fR\fR
.ad
.RS 29n
Device driver (SPARC)
64-bit ELF kernel module (x86)
.RE

.sp
.ne 2
.na
\fB\fB/kernel/drv/sparcv9/fcoet\fR\fR
.ad
.RS 29n
64-bit ELF kernel module (SPARC)
.RE

.SH ATTRIBUTES
.sp
.LP
See \fBattributes\fR(5) for a description of the following attributes:
.sp

.sp
.TS
```



```
box;
l | l
l | l .
ATTRIBUTE TYPE  ATTRIBUTE VALUE
_
Architecture    SPARC, x86
.TE

.SH SEE ALSO
.sp
.LP
\fBdriver.conf\fR(4), \fBattributes\fR(5), \fBfcoe\fR(7D)
.sp
.LP
\fIWriting Device Drivers\fR
.sp
.LP
\fIANSI X3.269-1996, Fibre Channel Protocol for SCSI (FCP)\fR
```

```
**********************************************************
    2052 Fri Jan 10 14:01:41 2020
new/usr/src/man/man7d/hci1394.7d
11639 some man pages show incorrect driver locations
**********************************************************
'\" te
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.TH HCI1394 7D "Jan 10, 2020"
.TH HCI1394 7D "Aug 30, 2005"
.SH NAME
hci1394 \- 1394 OpenHCI host controller driver
.SH SYNOPSIS
.LP
.nf
\fBfirewire@unit-address\fR
.fi

.SH DESCRIPTION
.sp
.LP
The \fBhci1394\fR host controller driver is an IEEE 1394 compliant nexus driver
that supports the \fI1394 Open Host Controller Interface Specification 1.0\fR,
an industry standard developed by Sun, Apple, Compaq, Intel, Microsoft,
National Semiconductor, and Texas Instruments. The \fBhci1394\fR driver supports
National Semconductor, and Texas Instruments. The \fBhci1394\fR driver supports
asynchronous transfers, isochronous transfers, and bus reset management. The
\fBhci1394\fR driver also supports the nexus device control interface.
.SH FILES
.sp
.ne 2
.na
\fB\fB/kernel/drv/sparcv9/hci1394\fR\fR
.ad
.sp .6
.RS 4n
Device driver (SPARC)
64-bit SPARC ELF kernel module
.RE

.sp
.ne 2
.na
\fB\fB/kernel/drv/hci1394\fR\fR
.ad
.sp .6
.RS 4n
32-bit x86 ELF kernel module
.RE

.sp
.ne 2
.na
\fB\fB/kernel/drv/amd64/hci1394\fR\fR
.ad
.sp .6
.RS 4n
Device driver (x86)
64-bit x86 ELF kernel module
.RE

.SH ATTRIBUTES
.sp
.LP
```



```
See \fBattributes\fR(5) for a description of the following attributes:
.sp

.sp
.TS
box;
l | l
l | l .
ATTRIBUTE TYPE  ATTRIBUTE VALUE
_
Architecture    SPARC, x86, PCI-based systems
_
Interface Stability     Unstable
.TE

.SH SEE ALSO
.sp
.LP
\fBattributes\fR(5), \fBieee1394\fR(7D)
.sp
.LP
\fIIEEE 1394 - IEEE Standard for a High Performance Serial Bus\fR
.sp
.LP
\fI1394 Open Host Controller Interface Specification 1.0\fR
```

```
***********************************************************
    3565 Fri Jan 10 14:01:41 2020
new/usr/src/man/man7d/ieee1394.7d
11639 some man pages show incorrect driver locations
***********************************************************
```

```
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.\" the fields enclosed by brackets "[]" replaced with your own identifying info
.TH IEEE1394 7D "Jan 10, 2020"
.TH IEEE1394 7D "May 13, 2017"
.SH NAME
ieee1394, firewire, 1394 \- illumos IEEE-1394 Architecture
ieee1394, firewire, 1394 \- Solaris IEEE-1394 Architecture
.SH DESCRIPTION
.LP
IEEE-1394 provides a means for interconnecting devices in computer and home
entertainment systems. (The IEEE-1394 architecture is also known as Firewire,
an Apple Computer trademark, and i.Link, a Sony trademark). The most common
IEEE-1394 devices are digital camcorders, mass-storage devices and cameras
(including webcam-type devices). For more information on IEEE-1394, refer to the
1394 Trade Association website at http://\fIwww.1394ta.org\fR.
(including webcam-type devices). For more information on USB, refer to the 1394
Trade Association website at http://\fIwww.1394ta.org\fR.
.sp
.LP
The illumos IEEE-1394 architecture supports up to 63 hot-pluggable IEEE-1394
The Solaris IEEE-1394 architecture supports up to 63 hot-pluggable IEEE-1394
devices per IEEE-1394 bus. The maximum data transfer rate is 400 Mbits,
depending on the capabilities of the attached device.
.sp
.LP
The illumos IEEE-1394 architecture supports devices implementing a number of
The Solaris IEEE-1394 architecture supports devices implementing a number of
different specifications. The basic behavior of the IEEE-1394 bus is described
in the \fIIEEE 1394-1995\fR and \fIIEEE 1394a-2000\fR specifications.
.sp
.LP
IEEE-1394 host controllers implementing the 1394 Open Host Controller Interface
specification are supported. Camcorders implementing the \fIIEC 61883\fR
and 1394 Trade Association AV/C specifications are supported. Mass-storage
devices implementing the \fIANSI SBP-2\fR specification are supported. Digital
cameras implementing the 1394 Trade Association 1394-based Digital Camera
(IIDC) specification are supported.
.SH FILES
.LP
Listed below are drivers and modules which either utilize or are utilized by
the illumos IEEE-1394 architecture.
the Solaris IEEE-1394 architecture. Drivers in \fB/kernel/drv\fR are 32 bit
drivers (only). Drivers in \fB/kernel/drv/sparcv9\fR or \fB/kernel/drv/amd64\fR
are 64 bit drivers.
.sp

.sp
.TS
box;
c | c
l | l .
SUPPORT MODULE(S)       FUNCTION
_
/kernel/misc/[sparcv9|amd64]/s1394      IEEE-1394 framework
/kernel/misc/[sparcv9|amd64/]s1394      IEEE-1394 framework
_
/kernel/misc/[sparcv9|amd64]/sbp2       Serial Bus Protocol-2 (SBP-2)
```



```
/kernel/misc/[sparcv9|amd64/]sbp2       Serial Bus Protocol-2 (SBP-2)
.TE

.sp

.sp
.TS
box;
c | c
l | l .
TARGET DRIVER   DEVICE CLASS
_
/kernel/drv/[sparcv9|amd64]/scsa1394    mass storage class
/kernel/drv/[sparcv9|amd64/]s1394       IEEE-1394 framework
_
/kernel/drv/[sparcv9|amd64]/av1394      camcorder (AV/C) class
/kernel/drv/[sparcv9|amd64/]scsa1394    mass storage class
_
/kernel/drv/[sparcv9|amd64]/dcam1394    digital camera (IIDC) class
/kernel/drv/[sparcv9|amd64/]av1394      camcorder (AV/C) class
_
/kernel/drv/[sparcv9|amd64/]dcam1394    digital camera (IIDC) class
.TE

.sp

.sp
.TS
box;
c | c
l | l .
HOST CONTROLLER INTERFACE DRIVER(S)     DEVICE
_
/kernel/drv/[sparcv9|amd64]/hci1394     Open HCI
/kernel/drv/[sparcv9|amd64/]hci1394     Open HCI
.TE

.SH ATTRIBUTES
.LP
See \fBattributes\fR(5) for descriptions of the following attributes:
.sp

.sp
.TS
box;
c | c
l | l .
ATTRIBUTE TYPE  ATTRIBUTE VALUE
_
Architecture    PCI-based systems
.TE

.SH SEE ALSO
.LP
\fBattributes\fR(5), \fBav1394\fR(7D), \fBdcam1394\fR(7D), \fBhci1394\fR(7D),
\fBscsa1394\fR(7D), \fBiec61883\fR(7I)
.sp
.LP
\fIIEEE 1394a\fR Specification - 1394 Trade Association, 2000
.sp
.LP
\fIIEEE 1394\fR Specification - 1394 Trade Association, 1995
.SH NOTES
.LP
Booting from IEEE-1394 mass-storage devices is not supported, but may be
possible if supported by the BIOS of the computer system.
```

```
**********************************************************
    2215 Fri Jan 10 14:01:41 2020
new/usr/src/man/man7d/ntwdt.7d
11639 some man pages show incorrect driver locations
**********************************************************
'\" te
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.TH NTWDT 7D "Jan 10, 2020"
.TH NTWDT 7D "Feb 05, 2005"
.SH NAME
ntwdt \- Netra\(embased application watchdog timer driver
.SH SYNOPSIS
.LP
.nf
/dev/ntwdt
.fi

.SH DESCRIPTION
.sp
.LP
The \fBntwdt\fR driver is a multithreaded, loadable, non-STREAMS pseudo driver
that provides an application with an interface for controlling a system
watchdog timer.
.sp
.LP
The \fBntwdt\fR driver implements a \fBvirtual watchdog timer\fR that a
privileged application (Effective UID == 0) controls via IOCTLs.
.SH CONFIGURATION
.sp
.LP
You configure the \fBntwdt\fR driver by modifying the contents of the
\fBntwdt.conf\fR file.
.SH ERRORS
.sp
.LP
An \fBopen()\fR fails if:
.sp
.ne 2
.na
\fBEPERM\fR
.ad
.RS 10n
Effective user ID is not zero.
.RE

.sp
.ne 2
.na
\fBENOENT\fR
.ad
.RS 10n
\fB/dev/ntwdt\fR is not present or driver is not installed.
.RE

.sp
.ne 2
.na
\fBEAGAIN\fR
.ad
.RS 10n
\fB/dev/ntwdt\fR has already been successfully open()'d.
.RE
```



```
.SH FILES
.sp
.ne 2
.na
\fB/dev/ntwdt\fR
.ad
.RS 28n
Special character device.
.RE

.sp
.ne 2
.na
\fB/kernel/drv/sparcv9/ntwdt\fR
\fBkernel/drv/sparcv9/ntwdt\fR
.ad
.RS 28n
Device driver (SPARC)
SPARC ntwdt driver binary.
.RE

.sp
.ne 2
.na
\fB/kernel/drv/ntwdt.conf\fR
\fBkernel/drv/ntwdt.conf\fR
.ad
.RS 28n
Driver configuration file
Driver configuraton file.
.RE

.SH ATTRIBUTES
.sp
.LP
See \fBattributes\fR(5) for descriptions of the following attributes:
.sp

.sp
.TS
box;
c | c
l | l .
ATTRIBUTE TYPE  ATTRIBUTE VALUE
_
Architecture    SPARC
.TE

.SH SEE ALSO
.sp
.LP
\fBdriver.conf\fR(4), \fBattributes\fR(5)
.sp
.LP
\fIWriting Device Drivers\fR
```

```
**********************************************************
    5435 Fri Jan 10 14:01:41 2020
new/usr/src/man/man7d/usba.7d
11639 some man pages show incorrect driver locations
**********************************************************
```

```
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.\" the fields enclosed by brackets "[]" replaced with your own identifying info
.Dd Jan 10, 2020
.Dd May 13, 2017
.Dt USBA 7D
.Os
.Sh NAME
.Nm usba ,
.Nm usb
.Nd illumos USB Architecture (USBA)
.Sh DESCRIPTION
USB provides a low-cost means for attaching peripheral devices, including
mass-storage devices, keyboards, mice, and printers, to a system.
For complete information on the USB architecture, visit the USB website at
http://www.usb.org.
.Pp
USBA supports 126 hot-pluggable USB devices per USB bus.
The maximum data transfer rate is 5 Gbits (SuperSpeed USB 3.0), 480 Mbits (high
speed USB 2.0), 12 Mbits (full speed USB 1.x), or 1.5 Mbits (low speed USB 1.x).
.Pp
USBA adheres to the
.Em Universal Serial Bus 3.0
specification and provides a transport layer abstraction to USB client
drivers.
.Pp
For information on how to write USB client drivers, see
.Em Writing Device Drivers .
For the latest information on writing USB drivers, visit
.Em http://illumos.org/books/wdd .
For a complete list of USBA interfaces, see
.Xr Intro 9F
or
.Xr Intro 9S .
.Pp
Devices without a driver may be able to leverage libusb.
.Sh FILES
Listed below are drivers and modules which either utilize or are utilized by
USBA.
.Bl -column -offset indent ".Pa /kernel/drv/[sparcv9|amd64]/usbser_edge" "Edgepo
Drivers in
.Pa /kernel/drv
are 32 bit drivers (x86 only).
Drivers in
.Pa /kernel/drv/sparcv9
or
.Pa kernel/drv/amd64
are 64 bit drivers.
.Bl -column -offset indent ".Pa kernel/drv/[sparcv9|amd64/]usbser_edge" "Edgepor
.It Em Client Driver Ta Em Function/Device
.It Ta
.It Pa /kernel/drv/[sparcv9|amd64]/hid Ta HID class
.It Pa /kernel/drv/[sparcv9|amd64]/hubd Ta hub class
.It Pa /kernel/drv/[sparcv9|amd64]/scsa2usb Ta mass storage class
.It Pa /kernel/drv/[sparcv9|amd64]/usbprn Ta printer class
.It Pa /kernel/drv/[sparcv9|amd64]/usb_as Ta audio streaming class
.It Pa /kernel/drv/[sparcv9|amd64]/usb_ac Ta audio control class
.It Pa /kernel/drv/[sparcv9|amd64]/usbvc Ta video class
```



```
.It Pa /kernel/drv/[sparcv9|amd64]/usb_mid Ta multi-interface device
.It Pa /kernel/drv/[sparcv9|amd64]/usb_ia Ta interface-association driver
.It Pa /kernel/drv/[sparcv9|amd64]/usbser_edge Ta Edgeport USB to serial port
.It Pa /kernel/drv/[sparcv9|amd64]/usbsksp Ta Keyspan USB to serial port
.It Pa /kernel/drv/[sparcv9|amd64]/usbsprl Ta pl2303 USB to serial port
.It Pa /kernel/drv/[sparcv9|amd64]/usbsacm Ta CDC ACM class to serial port
.It Pa /kernel/drv/[sparcv9|amd64]/ugen Ta generic USB driver
.It Pa kernel/drv/[sparcv9|amd64/]hid Ta HID class
.It Pa kernel/drv/[sparcv9|amd64/]hubd Ta hub class
.It Pa kernel/drv/[sparcv9|amd64/]scsa2usb Ta mass storage class
.It Pa kernel/drv/[sparcv9|amd64/]usbprn Ta printer class
.It Pa kernel/drv/[sparcv9|amd64/]usb_as Ta audio streaming class
.It Pa kernel/drv/[sparcv9|amd64/]usb_ac Ta audio control class
.It Pa kernel/drv/[sparcv9|amd64/]usbvc Ta video class
.It Pa kernel/drv/[sparcv9|amd64/]usb_mid Ta multi-interface device
.It Pa kernel/drv/[sparcv9|amd64/]usb_ia Ta interface-association driver
.It Pa kernel/drv/[sparcv9|amd64/]usbser_edge Ta Edgeport USB to serial port
.It Pa kernel/drv/[sparcv9|amd64/]usbsksp Ta Keyspan USB to serial port
.It Pa kernel/drv/[sparcv9|amd64/]usbsprl Ta pl2303 USB to serial port
.It Pa kernel/drv/[sparcv9|amd64/]usbsacm Ta CDC ACM class to serial port
.It Pa kernel/drv/[sparcv9|amd64/]ugen Ta generic USB driver
.It Pa kernel/drv/[sparcv9|amd64/]ohci Ta open host controller driver
.It Pa kernel/drv/[sparcv9|amd64/]uhci Ta universal host controller driver
.It Pa kernel/drv/[sparcv9|amd64/]ehci Ta enhanced host controller driver
.It Pa kernel/drv/[sparcv9|amd64/]xhci Ta extensible host controller driver
.El
.Bl -column -offset indent ".Pa /kernel/strmod/[sparcv9|amd64/]usb_ah" "Function
.It Ta
.It Em Client Streams Modules Ta Em Function/Device
.It Ta
.It Pa /kernel/strmod/[sparcv9|amd64]/usbkbm Ta Keyboard
.It Pa /kernel/strmod/[sparcv9|amd64]/usbms Ta Mouse
.It Pa /kernel/strmod/[sparcv9|amd64]/usb_ah Ta Audio HID
.It Pa /kernel/strmod/[sparcv9|amd64/]usbkbm Ta Keyboad
.It Pa /kernel/strmod/[sparcv9|amd64/]usbms Ta Mouse
.It Pa /kernel/strmod/[sparcv9|amd64/]usb_ah Ta Audio HID
.El
.Bl -column -offset indent ".Em Host Controller Interface Drivers" "Extensible H
.It Em Host Controller Interface Drivers Ta Em Device
.It Ta
.It Pa /kernel/drv/amd64/xhci Ta Extensible HCI
.It Pa /kernel/drv/[sparcv9|amd64]/ehci Ta Enhanced HCI
.It Pa /kernel/drv/[sparcv9|amd64]/ohci Ta Open HCI
.It Pa /kernel/drv/[sparcv9|amd64]/uhci Ta Universal HCI
.It Pa /kernel/drv/[amd64/]xhci Ta Extensible HCI
.It Pa /kernel/drv/[sparcv9|amd64/]ehci Ta Enhanced HCI
.It Pa /kernel/drv/[sparcv9|amd64/]ohci Ta Open HCI
.It Pa /kernel/drv/[sparcv|amd64/]uhci Ta Universal HCI
.El
.Sh DIAGNOSTICS
The messages described below may appear on the system console as well as being
logged.
All  messages are formatted in the following manner:
.Bl -tag -width Sy -offset 2n
.It WARNING: Error message...
.El
.Bl -tag -width Sy -offset 2n
.It Sy no driver found for device <device_name> (interface <number> node
name=<node_name>)
The installed software does not contain a supported driver for this
hardware.
<number> is the interface number.
<name> is either the device path name or the device name.
.It Sy Draining callbacks timed out!
An internal error occurred.
Please reboot your system.
```

```
 93 If this problem persists, contact your system vendor.
 94 .El
 95 .Pp
 96 The following messages may be logged into the system log.
 97 They are formatted in the following manner:
 98 .Bd -literal -offset 2n
 99 <device path><usba<instance number>): message...
100 .Ed
101 .Bl -tag -width Sy -offset 2n
102 .It Sy Incorrect USB driver version for <n.m> .
113 .It Sy Incorrect USB driver version for <n.m>.
103 Driver is incompatible with USBA framework.
104 .El
105 .Sh SEE ALSO
106 .Xr cfgadm_usb 1M ,
107 .Xr attributes 5 ,
108 .Xr ehci 7D ,
109 .Xr hid 7D ,
110 .Xr hubd 7D ,
111 .Xr ohci 7D ,
112 .Xr scsa2usb 7D ,
113 .Xr ugen 7D ,
114 .Xr uhci 7D ,
115 .Xr usb_ac 7D ,
116 .Xr usb_as 7D ,
117 .Xr usb_ia 7D ,
118 .Xr usb_mid 7D ,
119 .Xr usbprn 7D ,
120 .Xr usbsacm 7D ,
121 .Xr usbser_edge 7D ,
122 .Xr usbsksp 7D ,
123 .Xr usbsprl 7D ,
124 .Xr usbvc 7D ,
125 .Xr virtualkm 7D ,
126 .Xr xhci 7D ,
127 .Xr Intro 9F ,
128 .Xr Intro 9S
129 .Pp
130 .Rs
131 .%T Writing Device Drivers
132 .Re
133 .Rs
134 .%T Universal Serial Bus Specification 3.0
135 .Re
136 .Rs
137 .%T Interface Association Descriptor Engineering Change Notice (ECN)
138 .Re
139 .Rs
140 .%T System Administration Guide: Basic Administration
141 .Re
142 .Sh NOTES
143 Booting from USB mass-storage devices is not supported on SPARC, but is
144 supported on X86.
```