Short Report on operation of ARC controller

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1 – Hardware Byte Swapping

The hardware byte swapping does not seem to work. The command TBS (for testing the availability of the feature) returns ERROR as indicated in the extract below:

```
arcdrvTestTDL: Test Byte Swapping ...
  arcdrvIoctl: channel=0 command=TBS arg=0EFAFDC0
  arcdrvCommand(TBS)
  arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
  arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
  arcdrvCommand: WR(0xFD040020) = 0x00544253 (cmdData[1])
  arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
  arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000001A (ERROR) try #0
  arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
  CheckReplyFlags: return ERROR
  ioctl OK cmd=0129 'TBS' arg=-1 -1 -1 -1 -1 reply=00000000
     Byte Swapping NOT supported
```

The command is sent after of course having downloaded both the PCI code (**`pmc_noirq.lod`**) and the clock pattern (**`tim.lod`**) as of delivery AUG2004.

2 – Controller Status Query

As of a mail of Scott dated 21Dec2004 the query of the Controller Status returns **`TIMEOUT`** whenever the controller is idle. When the controller is reading data, the status is returned as **`READ`** which is correct. See extract below:

```
arcdrvTestEXP: Read Controller Status (t=162484)
  arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
  arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000003 (TIMEOUT) try #50
  arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000003 (TIMEOUT) try #2
  arcdrvCheckReplyFlags: return TIMEOUT
  arcdrvGetHSTR: RD(0xFD040014) hstr=0x00000003
  ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=00000003
```

While reading out one gets **`READ`** as expected:

```
arcdrvTestEXP: Read Controller Status (t=162608)
  arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
  arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000002B (READING)
  CheckReplyFlags: return READING
  arcdrvGetHSTR: RD(0xFD040014) hstr=0x0000002B
  ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=0000002B
```

At the end of the readout, the status is also correct **`DONE`**:

```
arcdrvTestEXP: Read Controller Status (t=162623)
  arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
  arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000B (DONE)
  arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
  CheckReplyFlags: return DONE
```

```
arcdrvGetHSTR: RD(0xFD040014) hstr=0x00000003
ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=00000003
```

Reading it once more a couple of milliseconds later indicates again **TIMEOUT**.

3 – Performances

3.1 - Full Frame

This mode works correctly using either only output **__L** or **__R** or both outputs **_LR**.
The readout time for the whole chip [564 cols × 528 rows] is:

Output	Readout time [ms]	Readout time / pixel [µs]
_LR	210	0.705
__L	359	1.223
__R	358	1.220

This leads to a common overhead of 60ms and a readout duration of 150ms per output.

The average wipe time is 8.5 to 10 ms.

3.2 – 1 Window 1 Output

This mode works correctly using either output **__L** or **__R**.
The readout time for a window [200 × 200] is:

Output	Location		Readout time [ms]	Readout time / pixel [µs]
	X	Y		
__L or **__R**	50	50	121.996	3.050
	50	300	150.007	3.750
	300	50	150.007	3.750
	300	300	179.995	4.500

One can note an increase of the readout time when the window is further from the serial register.

This leads to following timing:

```
 50L + 200 × ( 50P + 200R) + 278M = 122ms
300L + 200 × ( 50P + 200R) +  28M = 150ms
 50L + 200 × (300P + 200R) + 278M = 150ms
300L + 200 × (300P + 200R) +  28M = 180ms
```

hence:

Skip 1 line: L=152µs
Skip 1 pixel: P=0.56µs
Read 1 pixel: R=2.76µs

Idem for a window [40 × 40], [30 × 30] and [20 × 20]:

Output	Location		Readout time [ms]	Readout time / pixel [µs]
	X	Y		
__L or **__R**	50	50	60.000	37.50
	50	300	60.000	37.50
	300	50	60.000	37.50
	300	300	60.000	37.50

The windowed readout time seems not to depend much on the window size but more on the chip size.

3.3 - 1 Window 2 Outputs

This mode does not work properly as the controller hangs for ever at approximately mid-readout: Window [126x200] at (24;50) leading to 50400 pixels:

```
     arcdrvTestEXP: Read pixel count  =
       arcdrvIoctl: channel=0 command=PRG arg=0EFAF3D0
       arcdrvGetProgress: WR(0xFD040018) = 0x00008075 (hcvr
       =arcdrvREAD_PCI_IMAGE_ADDR)
       arcdrvGetProgress: RD(0xFD04001C) = 0x00004600 0x00000000 (lower,upper)
              ➔ PixCnt = 00004600 = 17920
       ioctl OK cmd=0208 'PRG' arg=-1 -1 -1 -1 -1 reply=00004600
       17920 of 50400
Wait 10ms
     arcdrvTestEXP: Read pixel count  =
       arcdrvIoctl: channel=0 command=PRG arg=0EFAF3D0
       arcdrvGetProgress: WR(0xFD040018) = 0x00008075 (hcvr
       =arcdrvREAD_PCI_IMAGE_ADDR)
       arcdrvGetProgress: RD(0xFD04001C) = 0x00006200 0x00000000 (lower,upper)
              ➔ PixCnt = 00006200 = 25088
       ioctl OK cmd=0208 'PRG' arg=-1 -1 -1 -1 -1 reply=00006200
       25088 of 50400
Wait 10ms
     arcdrvTestEXP: Read pixel count  =
       arcdrvIoctl: channel=0 command=PRG arg=0EFAF3D0
       arcdrvGetProgress: WR(0xFD040018) = 0x00008075 (hcvr
       =arcdrvREAD_PCI_IMAGE_ADDR)
       arcdrvGetProgress: RD(0xFD04001C) = 0x00006200 0x00000000 (lower,upper)
              ➔ PixCnt = 00006200 = 25088
       ioctl OK cmd=0208 'PRG' arg=-1 -1 -1 -1 -1 reply=00006200
       25088 of 50400
Since no change, assume readout is finished:
     arcdrvTestEXP: Read Controller Status (t=1242746)
       arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
       arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000002B (READING)
       CheckReplyFlags: return READING
       arcdrvGetHSTR: RD(0xFD040014) hstr=0x0000002B
       ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=0000002B

       arcdrvTestEXP: Read elapsed time =
       arcdrvIoctl: channel=0 command=RET arg=0EFAF3D0
       arcdrvCommand(RET)
       ioctl NOK cmd=010B 'RET' arg=-1 -1 -1 -1 -1 reply=FFFFFFB8 error=-72
             Read elapsed time: FAILED

Any further attempt to access the controller fails as the CPU hangs.
```

3.4 - 2 Windows 1 Output

This mode has not been tested yet.

Due to the current limitation of the controller firmware both windows must:

- not overlap
- have the same size (acceptable for ESO)
- must be vertically disconnected (not acceptable for chopping as both windows may rotate around each other due to the field rotation and hence share some rows).

The question related to the implementation of the 3rd point was submitted to B. Leach for investigation late September 2004. No answer was received yet.

4 – Vertical Smearing increase with exposure time

A vertical smearing of the image has been observed when increasing the exposure time as shown below:

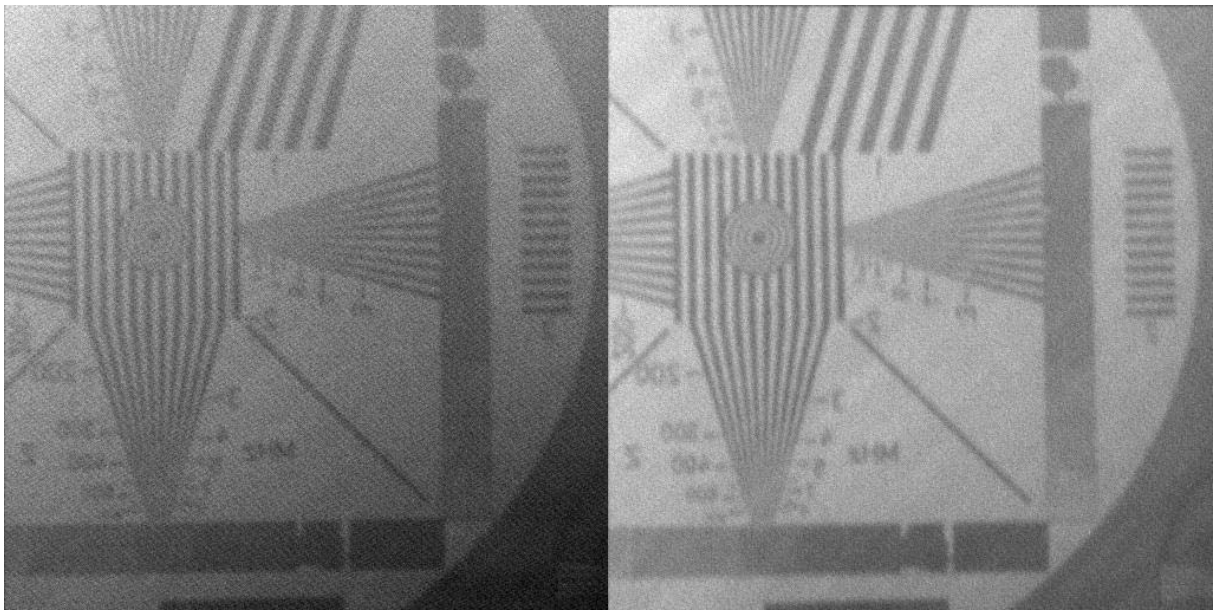

Figure 1&2 - ExposureTime = 1ms (Left) & 50ms (Right)

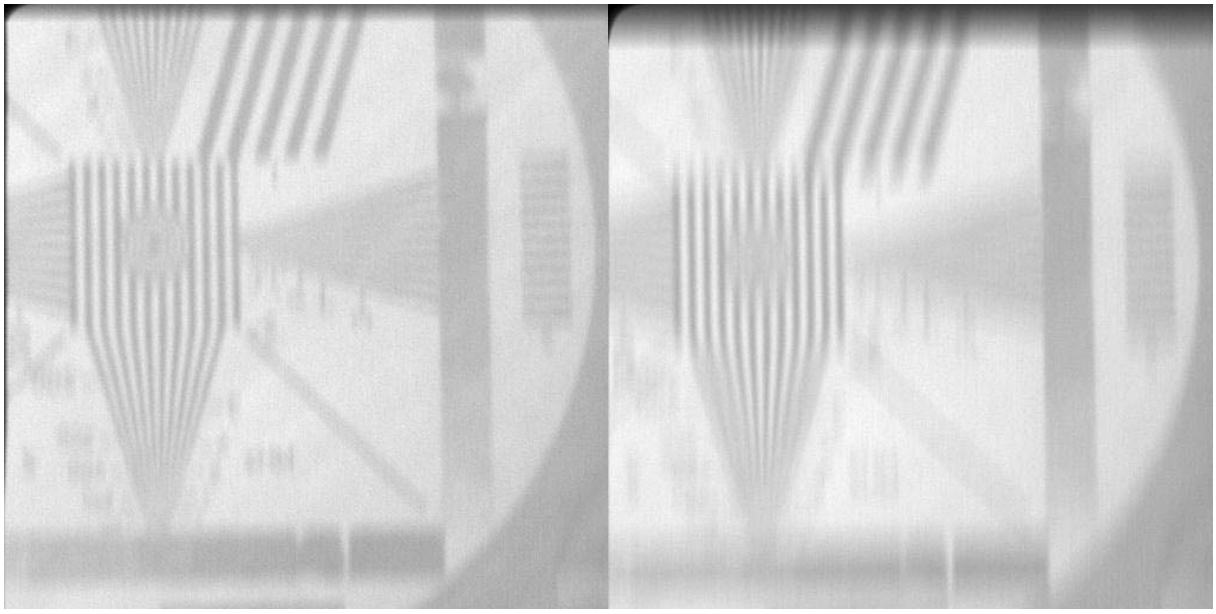

Figure 2&4 - Exposure Time = 200ms (Left) & 500ms (Right)

No explanation was found yet.

Annex 1 – Test TDL

```
lted-> arcdrvTestTDL
arcdrvTestTDL: Reset ioctl arguments

arcdrvTestTDL: Open ARC device '/arc0' ... fd=30

arcdrvTestTDL: Set Controller Master PCI
arcdrvIoctl: channel=0 command=CMA arg=0EFAFDC0
ioctl OK cmd=0204 'CMA' arg=00000001 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Reset Controller
arcdrvIoctl: channel=0 command=RST arg=0EFAFDC0
arcdrvSetHCVR: WR(0xFD040018) = 0x00000085 (hcvr=arcdrvCLEAR_REPLY_FLAGS)
arcdrvSetHCVR: WR(0xFD040018) hcvr = 0x00000087
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000023 (SYSRESET) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return SYSRESET
ioctl OK cmd=0201 'RST' arg=-1 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Test Data Link to PCI ...
arcdrvIoctl: channel=0 command=TDL arg=0EFAFDC0
arcdrvCommand(TDL)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000103 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0054444C (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00001234 (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00001234 (replyBuffer)
ioctl OK cmd=0115 'TDL' arg=00001234 -1 -1 -1 -1 reply=00001234
arcdrvIoctl: channel=0 command=TDL arg=0EFAFDC0
        Test Data Link (0) 0x001234: OK
        Test Data Link (1) 0x001235: OK
        Test Data Link (2) 0x001236: OK
        Test Data Link (3) 0x001237: OK
        Test Data Link (4) 0x001238: OK
        Test Data Link (5) 0x001239: OK
        Test Data Link (6) 0x00123A: OK
        Test Data Link (7) 0x00123B: OK
        Test Data Link (8) 0x00123C: OK
        Test Data Link (9) 0x00123D: OK

arcdrvTestTDL: Test Byte Swapping ...
arcdrvIoctl: channel=0 command=TBS arg=0EFAFDC0
arcdrvCommand(TBS)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00544253 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000001A (ERROR) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return ERROR
ioctl OK cmd=0129 'TBS' arg=-1 -1 -1 -1 -1 reply=00000000
        Byte Swapping NOT supported

arcdrvTestTDL: Write memory P00=0x5A5A
arcdrvIoctl: channel=0 command=WRM arg=0EFAFDC0
arcdrvCommand(WRM)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000104 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0057524D (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00100000 (cmdData[2])
arcdrvCommand: WR(0xFD040020) = 0x00005A5A (cmdData[3])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0116 'WRM' arg=00100000 00005A5A -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Write memory P01=0xA5A5
arcdrvIoctl: channel=0 command=WRM arg=0EFAFDC0
arcdrvCommand(WRM)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000104 (cmdData[0])
```

```
arcdrvCommand: WR(0xFD040020) = 0x0057524D (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00100001 (cmdData[2])
arcdrvCommand: WR(0xFD040020) = 0x0000A5A5 (cmdData[3])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0116 'WRM' arg=00100001 0000A5A5 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Read memory P00 ...
arcdrvIoctl: channel=0 command=RDM arg=0EFAFDC0
arcdrvCommand(RDM)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000103 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0052444D (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00100000 (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00005A5A (replyBuffer)
ioctl OK cmd=010A 'RDM' arg=00100000 -1 -1 -1 -1 reply=00005A5A
0x005A5A

arcdrvTestTDL: Read memory P01 ...
arcdrvIoctl: channel=0 command=RDM arg=0EFAFDC0
arcdrvCommand(RDM)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000103 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0052444D (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00100001 (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x0000A5A5 (replyBuffer)
ioctl OK cmd=010A 'RDM' arg=00100001 -1 -1 -1 -1 reply=0000A5A5
0x00A5A5

arcdrvTestTDL: Download PCI code './acetecARC-NOIRQ.bin' ... DONE

arcdrvTestTDL: Set Controller Master PCI
arcdrvIoctl: channel=0 command=CMA arg=0EFAFDC0
ioctl OK cmd=0204 'CMA' arg=00000001 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Reset Controller
arcdrvIoctl: channel=0 command=RST arg=0EFAFDC0
arcdrvSetHCVR: WR(0xFD040018) = 0x00000085 (hcvr=arcdrvCLEAR_REPLY_FLAGS)
arcdrvSetHCVR: WR(0xFD040018) hcvr = 0x00000087
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000023 (SYSRESET) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return SYSRESET
ioctl OK cmd=0201 'RST' arg=-1 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Test Byte Swapping ...
arcdrvIoctl: channel=0 command=TBS arg=0EFAFDC0
arcdrvCommand(TBS)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00544253 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000001A (ERROR) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return ERROR
ioctl OK cmd=0129 'TBS' arg=-1 -1 -1 -1 -1 reply=00000000
       Byte Swapping NOT supported

arcdrvTestTDL: Set Controller Master TIM
arcdrvIoctl: channel=0 command=CMA arg=0EFAFDC0
ioctl OK cmd=0204 'CMA' arg=00000002 -1 -1 -1 -1 reply=FFFFFFFF
arcdrvTestTDL: Test Data Link to TIM ...
arcdrvIoctl: channel=0 command=TDL arg=0EFAFDC0
arcdrvCommand(TDL)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000203 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0054444C (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00001234 (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
```

```
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00001234 (replyBuffer)
ioctl OK cmd=0115 'TDL' arg=00001234 -1 -1 -1 -1 reply=00001234
       Test Data Link (0) 0x001234: OK
       Test Data Link (1) 0x001235: OK
       Test Data Link (2) 0x001236: OK
       Test Data Link (3) 0x001237: OK
       Test Data Link (4) 0x001238: OK
       Test Data Link (5) 0x001239: OK
       Test Data Link (6) 0x00123A: OK
       Test Data Link (7) 0x00123B: OK
       Test Data Link (8) 0x00123C: OK
       Test Data Link (9) 0x00123D: OK

arcdrvTestTDL: Write Memory Y00=0x5A5A
arcdrvIoctl: channel=0 command=WRM arg=0EFAFDC0
arcdrvCommand(WRM)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000204 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0057524D (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00400000 (cmdData[2])
arcdrvCommand: WR(0xFD040020) = 0x00005A5A (cmdData[3])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0116 'WRM' arg=00400000 00005A5A -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Write Memory Y01=0xA5A5
arcdrvIoctl: channel=0 command=WRM arg=0EFAFDC0
arcdrvCommand(WRM)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000204 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0057524D (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00400001 (cmdData[2])
arcdrvCommand: WR(0xFD040020) = 0x0000A5A5 (cmdData[3])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0116 'WRM' arg=00400001 0000A5A5 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Read Memory Y00 ...
arcdrvIoctl: channel=0 command=RDM arg=0EFAFDC0
arcdrvCommand(RDM)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000203 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0052444D (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00400000 (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00005A5A (replyBuffer)
ioctl OK cmd=010A 'RDM' arg=00400000 -1 -1 -1 -1 reply=00005A5A
0x005A5A

arcdrvTestTDL: Read Memory Y01 ...
arcdrvIoctl: channel=0 command=RDM arg=0EFAFDC0
arcdrvCommand(RDM)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000203 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0052444D (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00400001 (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x0000A5A5 (replyBuffer)
ioctl OK cmd=010A 'RDM' arg=00400001 -1 -1 -1 -1 reply=0000A5A5
0x00A5A5

arcdrvTestTDL: Download TIM code './acetecE2V57.clk' ... DONE

arcdrvTestTDL: Get Revision Number = arcdrvIoctl: channel=0 command=RRN arg=0EFAFDC0
```

```
arcdrvCommand(RRN)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0052524E (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00312E30 (replyBuffer)
ioctl OK cmd=0120 'RRN' arg=-1 -1 -1 -1 -1 reply=00312E30
0x00312E30 = 1.0

arcdrvTestTDL: Get Controller Configuration =
arcdrvIoctl: channel=0 command=RCC arg=0EFAFDC0
arcdrvCommand(RCC)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00524343 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00001490 (replyBuffer)
ioctl OK cmd=0108 'RCC' arg=-1 -1 -1 -1 -1 reply=00001490
0x00001490

arcdrvTestTDL: Set callback function 'arcdrvCBImageDataTransferred'
arcdrvIoctl: channel=0 command=CBA arg=0EFAFDC0
ioctl OK cmd=0205 'CBA' arg=0EA9A568 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Test Byte Swapping ...
arcdrvIoctl: channel=0 command=TBS arg=0EFAFDC0
arcdrvCommand(TBS)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00544253 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000001A (ERROR) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return ERROR
ioctl OK cmd=0129 'TBS' arg=-1 -1 -1 -1 -1 reply=00000000
       Byte Swapping NOT supported

arcdrvTestTDL: Power On
arcdrvIoctl: channel=0 command=PON arg=0EFAFDC0
arcdrvCommand(PON)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00504F4E (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #20
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0107 'PON' arg=-1 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Wait 1 s

arcdrvTestTDL: Power Off
arcdrvIoctl: channel=0 command=POF arg=0EFAFDC0
arcdrvCommand(POF)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00504F46 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0106 'POF' arg=-1 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Wait 1 s

arcdrvTestTDL: Power On
arcdrvIoctl: channel=0 command=PON arg=0EFAFDC0
arcdrvCommand(PON)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00504F4E (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
```

```
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #20
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0107 'PON' arg=-1 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Set Controller Master PCI
arcdrvIoctl: channel=0 command=CMA arg=0EFAFDC0
ioctl OK cmd=0204 'CMA' arg=00000001 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Test Data Link to PCI
arcdrvIoctl: channel=0 command=TDL arg=0EFAFDC0
arcdrvCommand(TDL)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000103 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0054444C (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x0000123D (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x0000123D (replyBuffer)
ioctl OK cmd=0115 'TDL' arg=0000123D -1 -1 -1 -1 reply=0000123D

arcdrvTestTDL: Set Controller Master TIM
arcdrvIoctl: channel=0 command=CMA arg=0EFAFDC0
ioctl OK cmd=0204 'CMA' arg=00000002 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Test Data Link to TIM
arcdrvIoctl: channel=0 command=TDL arg=0EFAFDC0
arcdrvCommand(TDL)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000203 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0054444C (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x0000123D (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x0000123D (replyBuffer)
ioctl OK cmd=0115 'TDL' arg=0000123D -1 -1 -1 -1 reply=0000123D

arcdrvTestTDL: Set Controller Master UTL
arcdrvIoctl: channel=0 command=CMA arg=0EFAFDC0
ioctl OK cmd=0204 'CMA' arg=00000003 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Test Data Link to UTL
arcdrvIoctl: channel=0 command=TDL arg=0EFAFDC0
arcdrvCommand(TDL)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000303 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0054444C (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x0000123D (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000002 (TIMEOUT) try #50
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000002 (TIMEOUT) try #2
arcdrvCheckReplyFlags: return TIMEOUT
ioctl OK cmd=0115 'TDL' arg=0000123D -1 -1 -1 -1 reply=00000303
       Error on TDL to Util board (0000123D 00000303)

arcdrvTestTDL: Set Controller Master TIM
arcdrvIoctl: channel=0 command=CMA arg=0EFAFDC0
ioctl OK cmd=0204 'CMA' arg=00000002 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Switch Peltier On
arcdrvIoctl: channel=0 command=TEC arg=0EFAFDC0
arcdrvCommand(TEC)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000203 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00544543 (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00000001 (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0125 'TEC' arg=00000001 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Wait 1 s
```

```
arcdrvTestTDL: Read CCD Temperature flag ...
arcdrvIoctl: channel=0 command=RCT arg=0EFAFDC0
arcdrvCommand(RCT)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00524354 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00000000 (replyBuffer)
ioctl OK cmd=0126 'RCT' arg=-1 -1 -1 -1 -1 reply=00000000
       CCD too hot !
arcdrvTestTDL: Wait while CCD Temperature not OK
       Wait 5 s
...
arcdrvTestTDL: Read CCD Temperature flag ...
arcdrvIoctl: channel=0 command=RCT arg=0EFAFDC0
arcdrvCommand(RCT)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00524354 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00000000 (replyBuffer)
ioctl OK cmd=0126 'RCT' arg=-1 -1 -1 -1 -1 reply=00000000
       CCD too hot !
       Wait 5 s
...
arcdrvTestTDL: Read CCD Temperature flag ...
arcdrvIoctl: channel=0 command=RCT arg=0EFAFDC0
arcdrvCommand(RCT)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00524354 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00000002 (replyBuffer)
ioctl OK cmd=0126 'RCT' arg=-1 -1 -1 -1 -1 reply=00000002
       CCD Temperature = -30C

arcdrvTestTDL: Wait 1 s

arcdrvTestTDL: Switch Peltier Off
arcdrvIoctl: channel=0 command=TEC arg=0EFAFDC0
arcdrvCommand(TEC)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000203 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00544543 (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00000000 (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0125 'TEC' arg=00000000 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Wait 1 s

arcdrvTestTDL: Power Off
arcdrvIoctl: channel=0 command=POF arg=0EFAFDC0
arcdrvCommand(POF)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00504F46 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0106 'POF' arg=-1 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestTDL: Close device '/arc0' with fd=30

arcdrvTestTDL: done
```

```
value = 20 = 0x14
lted->
```

Annex 2 – Test EXP

```
lted -> arcdrvTestEXP 1
arcdrvTestEXP: Allocate memory for image [600x528] = 0x0E9FF000

arcdrvTestEXP: Open ARC device '/arc0' ... fd=30

arcdrvTestEXP: Reset ioctl arguments

arcdrvTestEXP: Set Controller Master PCI
arcdrvIoctl: channel=0 command=CMA arg=0EFAF3D0
ioctl OK cmd=0204 'CMA' arg=00000001 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Reset Controller
arcdrvIoctl: channel=0 command=RST arg=0EFAF3D0
arcdrvSetHCVR: WR(0xFD040018) = 0x00000085 (hcvr=arcdrvCLEAR_REPLY_FLAGS)
arcdrvSetHCVR: WR(0xFD040018) hcvr = 0x00000087
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000023 (SYSRESET) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return SYSRESET
ioctl OK cmd=0201 'RST' arg=-1 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Test Data Link to PCI
       Test Data Link (0) 0x123456: OK
       Test Data Link (1) 0x234567: OK
       Test Data Link (2) 0x345678: OK
       Test Data Link (3) 0x456789: OK
       Test Data Link (4) 0x56789A: OK
       Test Data Link (5) 0x6789AB: OK
       Test Data Link (6) 0x789ABC: OK
       Test Data Link (7) 0x89ABCD: OK
       Test Data Link (8) 0x9ABCDE: OK
       Test Data Link (9) 0xABCDEF: OK

arcdrvTestEXP: Download PCI code './acetecARC.bin' ... DONE

arcdrvTestEXP: Reset Controller
arcdrvIoctl: channel=0 command=RST arg=0EFAF3D0
arcdrvSetHCVR: WR(0xFD040018) = 0x00000085 (hcvr=arcdrvCLEAR_REPLY_FLAGS)
arcdrvSetHCVR: WR(0xFD040018) hcvr = 0x00000087
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000023 (SYSRESET) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return SYSRESET
ioctl OK cmd=0201 'RST' arg=-1 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Set Controller Master PCI
arcdrvIoctl: channel=0 command=CMA arg=0EFAF3D0
ioctl OK cmd=0204 'CMA' arg=00000001 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Test Byte Swapping ...
arcdrvIoctl: channel=0 command=TBS arg=0EFAF3D0
arcdrvCommand(TBS)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00544253 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000001A (ERROR) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return ERROR
ioctl OK cmd=0129 'TBS' arg=-1 -1 -1 -1 -1 reply=00000000
       Byte Swapping NOT supported

arcdrvTestEXP: Set Controller Master TIM
arcdrvIoctl: channel=0 command=CMA arg=0EFAF3D0

ioctl OK cmd=0204 'CMA' arg=00000002 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Test Data Link to TIM
       Test Data Link (0) 0x123456: OK
       Test Data Link (1) 0x234567: OK
       Test Data Link (2) 0x345678: OK
       Test Data Link (3) 0x456789: OK
       Test Data Link (4) 0x56789A: OK
       Test Data Link (5) 0x6789AB: OK
       Test Data Link (6) 0x789ABC: OK
       Test Data Link (7) 0x89ABCD: OK
       Test Data Link (8) 0x9ABCDE: OK
       Test Data Link (9) 0xABCDEF: OK
```

```
arcdrvTestEXP: Download TIM code './acetecE2V57.clk' ... DONE

arcdrvTestEXP: Get Revision Number =
arcdrvIoctl: channel=0 command=RRN arg=0EFAF3D0
arcdrvCommand(RRN)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0052524E (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00312E30 (replyBuffer)
ioctl OK cmd=0120 'RRN' arg=-1 -1 -1 -1 -1 reply=00312E30
0x00312E30 = 1.0

arcdrvTestEXP: Switch Power On
arcdrvIoctl: channel=0 command=PON arg=0EFAF3D0
arcdrvCommand(PON)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00504F4E (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #20
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0107 'PON' arg=-1 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Wait 1 s

arcdrvTestEXP: Switch Peltier On
arcdrvIoctl: channel=0 command=TEC arg=0EFAF3D0
arcdrvCommand(TEC)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000203 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00544543 (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00000001 (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0125 'TEC' arg=00000001 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Wait 1 s

arcdrvTestEXP: Read CCD Temperature flag ...
arcdrvIoctl: channel=0 command=RCT arg=0EFAF3D0
arcdrvCommand(RCT)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00524354 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00000000 (replyBuffer)
ioctl OK cmd=0126 'RCT' arg=-1 -1 -1 -1 -1 reply=00000000
       CCD too hot !

arcdrvTestEXP: Wait while CCD Temperature not OK
       Wait 5 s
...
arcdrvTestEXP: Read CCD Temperature flag ...
arcdrvIoctl: channel=0 command=RCT arg=0EFAF3D0
arcdrvCommand(RCT)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00524354 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00000000 (replyBuffer)
ioctl OK cmd=0126 'RCT' arg=-1 -1 -1 -1 -1 reply=00000000
       CCD too hot !
       Wait 5 s
```

```
arcdrvTestEXP: Read CCD Temperature flag ...
arcdrvIoctl: channel=0 command=RCT arg=0EFAF3D0
arcdrvCommand(RCT)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00524354 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00000002 (replyBuffer)
ioctl OK cmd=0126 'RCT' arg=-1 -1 -1 -1 -1 reply=00000002
       CCD Temperature = -30C

arcdrvTestEXP: Set callback function 'arcdrvCBImageDataTransferred'
arcdrvIoctl: channel=0 command=CBA arg=0EFAF3D0
ioctl OK cmd=0205 'CBA' arg=0EA9A568 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Set image memory buffer = 0x0E9FF000
arcdrvIoctl: channel=0 command=SDM arg=0EFAF3D0
arcdrvSetBufferAddresses: (0xFD040020) = 0x0000F000 (cmdData LW)
arcdrvSetBufferAddresses: (0xFD040020) = 0x00000E9F (cmdData HW)
arcdrvSetBufferAddresses: (0xFD040018) = 0x0000008D (hcvr=WRITE_PCI_ADDRESS)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000B (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0202 'SDM' arg=0E9FF000 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Get image memory buffer =
arcdrvIoctl: channel=0 command=GDM arg=0EFAF3D0
arcdrvGetDmaAddress: (0x0EF964E8) = 0x0E9FF000
ioctl OK cmd=0203 'GDM' arg=-1 -1 -1 -1 -1 reply=0E9FF000
0x0E9FF000

arcdrvTestEXP: Get Controller Configuration =
arcdrvIoctl: channel=0 command=RCC arg=0EFAF3D0
arcdrvCommand(RCC)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00524343 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00001490 (replyBuffer)
ioctl OK cmd=0108 'RCC' arg=-1 -1 -1 -1 -1 reply=00001490
0x00001490

arcdrvTestEXP: Set Gain = 2 & Speed = Fast
arcdrvIoctl: channel=0 command=SGN arg=0EFAF3D0
arcdrvCommand(SGN)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000204 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0053474E (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00000002 (cmdData[2])
arcdrvCommand: WR(0xFD040020) = 0x00000001 (cmdData[3])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0111 'SGN' arg=00000002 00000001 -1 -1 -1 reply=FFFFFFFF

Enter Image type (-1: End; 0=Full Frame; 1=Window): 0
Enter number of images: 1
Enter exposure time [ms]: 1200

Select Amplifier Outputs [_LR|__L|__R] : _LR
arcdrvTestEXP: Select Amplifier Output = _LR
arcdrvIoctl: channel=0 command=SOS arg=0EFAF3D0
arcdrvCommand(SOS)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000203 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00534F53 (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x005F4C52 (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
```

```
CheckReplyFlags: return DONE
ioctl OK cmd=011B 'SOS' arg=005F4C52 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Set Columns = 564
arcdrvIoctl: channel=0 command=COL arg=0EFAF3D0
arcdrvCommand(WRM)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000204 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0057524D (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00400001 (cmdData[2])
arcdrvCommand: WR(0xFD040020) = 0x00000234 (cmdData[3])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0128 'COL' arg=00000234 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Set Rows = 528
arcdrvIoctl: channel=0 command=ROW arg=0EFAF3D0
arcdrvCommand(WRM)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000204 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x0057524D (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00400002 (cmdData[2])
arcdrvCommand: WR(0xFD040020) = 0x00000210 (cmdData[3])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0127 'ROW' arg=00000210 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Reset Windows
arcdrvIoctl: channel=0 command=SSS arg=0EFAF3D0
arcdrvCommand(SSS)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000205 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00535353 (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00000000 (cmdData[2])
arcdrvCommand: WR(0xFD040020) = 0x00000000 (cmdData[3])
arcdrvCommand: WR(0xFD040020) = 0x00000000 (cmdData[4])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0114 'SSS' arg=00000000 00000000 00000000 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Set Exposure Time = 1200 ms
arcdrvIoctl: channel=0 command=SET arg=0EFAF3D0
arcdrvCommand(SET)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000203 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00534554 (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x000004B0 (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=010F 'SET' arg=000004B0 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Preset Image Data with ramp ... DONE

arcdrvTestEXP: Wipe Chip
arcdrvIoctl: channel=0 command=CLR arg=0EFAF3D0
arcdrvCommand(CLR)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00434C52 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0101 'CLR' arg=-1 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Start Exposure (t=162482)
arcdrvIoctl: channel=0 command=SEX arg=0EFAF3D0
arcdrvCommand(SEX)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00534558 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
```

```
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0110 'SEX' arg=-1 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Read Controller Status (t=162484)
arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000003 (TIMEOUT) try #50
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000003 (TIMEOUT) try #2
arcdrvCheckReplyFlags: return TIMEOUT
arcdrvGetHSTR: RD(0xFD040014) hstr=0x00000003
ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=00000003

arcdrvTestEXP: Wait 1200ms

arcdrvTestEXP: Read Controller Status (t=162556)
arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000002B (READING) try #46
CheckReplyFlags: return READING
arcdrvGetHSTR: RD(0xFD040014) hstr=0x0000002B
ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=0000002B

arcdrvTestEXP: Read pixel count  =
arcdrvIoctl: channel=0 command=PRG arg=0EFAF3D0
arcdrvGetProgress: WR(0xFD040018) = 0x00008075 (hcvr =arcdrvREAD_PCI_IMAGE_ADDR)
arcdrvGetProgress: RD(0xFD04001C) = 0x00000000 0x00000000 (lower,upper)
       -> PixCnt = 00000000 = 0
ioctl OK cmd=0208 'PRG' arg=-1 -1 -1 -1 -1 reply=00000000
0 of 297792

arcdrvTestEXP: Read Controller Status (t=162605)
arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000002B (READING) try #0
CheckReplyFlags: return READING
arcdrvGetHSTR: RD(0xFD040014) hstr=0x0000002B
ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=0000002B

arcdrvTestEXP: Read pixel count  =
arcdrvIoctl: channel=0 command=PRG arg=0EFAF3D0
arcdrvGetProgress: WR(0xFD040018) = 0x00008075 (hcvr =arcdrvREAD_PCI_IMAGE_ADDR)
arcdrvGetProgress: RD(0xFD04001C) = 0x00003E00 0x00000000 (lower,upper)
       -> PixCnt = 00003E00 = 15872
ioctl OK cmd=0208 'PRG' arg=-1 -1 -1 -1 -1 reply=00003E00
15872 of 297792

arcdrvTestEXP: Read Controller Status (t=162608)
arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000002B (READING) try #0
CheckReplyFlags: return READING
arcdrvGetHSTR: RD(0xFD040014) hstr=0x0000002B
ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=0000002B

arcdrvTestEXP: Read pixel count  =
arcdrvIoctl: channel=0 command=PRG arg=0EFAF3D0
arcdrvGetProgress: WR(0xFD040018) = 0x00008075 (hcvr =arcdrvREAD_PCI_IMAGE_ADDR)
arcdrvGetProgress: RD(0xFD04001C) = 0x00012400 0x00000001 (lower,upper)
       -> PixCnt = 00012400 = 74752
ioctl OK cmd=0208 'PRG' arg=-1 -1 -1 -1 -1 reply=00012400
74752 of 297792

arcdrvTestEXP: Read Controller Status (t=162611)
arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000002B (READING) try #0
CheckReplyFlags: return READING
arcdrvGetHSTR: RD(0xFD040014) hstr=0x0000002B
ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=0000002B

arcdrvTestEXP: Read pixel count  =
arcdrvIoctl: channel=0 command=PRG arg=0EFAF3D0
arcdrvGetProgress: WR(0xFD040018) = 0x00008075 (hcvr =arcdrvREAD_PCI_IMAGE_ADDR)
arcdrvGetProgress: RD(0xFD04001C) = 0x00020800 0x00000002 (lower,upper)
       -> PixCnt = 00020800 = 133120
ioctl OK cmd=0208 'PRG' arg=-1 -1 -1 -1 -1 reply=00020800
133120 of 297792

arcdrvTestEXP: Read Controller Status (t=162614)
arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000002B (READING) try #0
CheckReplyFlags: return READING
arcdrvGetHSTR: RD(0xFD040014) hstr=0x0000002B
```

```
ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=0000002B

arcdrvTestEXP: Read pixel count  =
arcdrvIoctl: channel=0 command=PRG arg=0EFAF3D0
arcdrvGetProgress: WR(0xFD040018) = 0x00008075 (hcvr =arcdrvREAD_PCI_IMAGE_ADDR)
arcdrvGetProgress: RD(0xFD04001C) = 0x0002EC00 0x00000002 (lower,upper)
        -> PixCnt = 0002EC00 = 191488
ioctl OK cmd=0208 'PRG' arg=-1 -1 -1 -1 -1 reply=0002EC00
191488 of 297792

arcdrvTestEXP: Read Controller Status (t=162617)
arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000002B (READING) try #0
CheckReplyFlags: return READING
arcdrvGetHSTR: RD(0xFD040014) hstr=0x0000002B
ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=0000002B

arcdrvTestEXP: Read pixel count  =
arcdrvIoctl: channel=0 command=PRG arg=0EFAF3D0
arcdrvGetProgress: WR(0xFD040018) = 0x00008075 (hcvr =arcdrvREAD_PCI_IMAGE_ADDR)
arcdrvGetProgress: RD(0xFD04001C) = 0x0003D200 0x00000003 (lower,upper)
        -> PixCnt = 0003D200 = 250368
ioctl OK cmd=0208 'PRG' arg=-1 -1 -1 -1 -1 reply=0003D200
250368 of 297792

arcdrvTestEXP: Read Controller Status (t=162620)
arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000002B (READING) try #0
CheckReplyFlags: return READING
arcdrvGetHSTR: RD(0xFD040014) hstr=0x0000002B
ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=0000002B

arcdrvTestEXP: Read pixel count  =
arcdrvIoctl: channel=0 command=PRG arg=0EFAF3D0
arcdrvGetProgress: WR(0xFD040018) = 0x00008075 (hcvr =arcdrvREAD_PCI_IMAGE_ADDR)
arcdrvGetProgress: RD(0xFD04001C) = 0x00048B40 0x00000004 (lower,upper)
        -> PixCnt = 00048B40 = 297792
ioctl OK cmd=0208 'PRG' arg=-1 -1 -1 -1 -1 reply=00048B40
297792 of 297792

arcdrvTestEXP: Read Controller Status (t=162623)
arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000B (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
arcdrvGetHSTR: RD(0xFD040014) hstr=0x00000003
ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=00000003

arcdrvTestEXP: Readout Time = 210 ms = 0.705 us/pix

arcdrvTestEXP: Read Controller Status (t=162624)
arcdrvIoctl: channel=0 command=RCS arg=0EFAF3D0
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000003 (TIMEOUT) try #50
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000003 (TIMEOUT) try #2
arcdrvCheckReplyFlags: return TIMEOUT
arcdrvGetHSTR: RD(0xFD040014) hstr=0x00000003
ioctl OK cmd=012C 'RCS' arg=-1 -1 -1 -1 -1 reply=00000003

arcdrvTestEXP: Read elapsed time =
arcdrvIoctl: channel=0 command=RET arg=0EFAF3D0
arcdrvCommand(RET)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00524554 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x000004AF (replyBuffer)
ioctl OK cmd=010B 'RET' arg=-1 -1 -1 -1 -1 reply=000004AF
1199 ms

arcdrvTestEXP: Taken 1 images in 210 ms

arcdrvTestEXP: Reorder image
        SOS=_LR ==> De-interlace LR & Flip right half

arcdrvTestEXP: Write FITS image [564x528] to file 'arcdrvTest162679.fits'
        arcdrvWriteFits: Write FITS header ... DONE
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        arcdrvWriteFits: Swap 297792 pixels
        arcdrvWriteFits: Written 297792 pixels
        arcdrvWriteFits: Fill up with 576 bytes ... DONE

Enter Image type (-1: End; 0=Full Frame; 1=Window): -1

        TERMINATE

arcdrvTestEXP: Read CCD Temperature flag ...
arcdrvIoctl: channel=0 command=RCT arg=0EFAF3D0
arcdrvCommand(RCT)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00524354 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x00000012 (REPLY) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return REPLY
arcdrvCommand: WR(0xFD040018) = 0x00000083 (hcvr=READ_REPLY_VALUE)
arcdrvCommand: RD(0xFD04001C) = 0x00000002 (replyBuffer)
ioctl OK cmd=0126 'RCT' arg=-1 -1 -1 -1 -1 reply=00000002
        CCD Temperature = -30C

arcdrvTestEXP: Wait 1 s

arcdrvTestEXP: Switch Peltier Off
arcdrvIoctl: channel=0 command=TEC arg=0EFAF3D0
arcdrvCommand(TEC)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000203 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00544543 (cmdData[1])
arcdrvCommand: WR(0xFD040020) = 0x00000000 (cmdData[2])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0125 'TEC' arg=00000000 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Switch Power Off
arcdrvIoctl: channel=0 command=POF arg=0EFAF3D0
arcdrvCommand(POF)
arcdrvCommand: WR(0xFD040018) = 0x00000085 (hcvr=CLEAR_REPLY_FLAGS)
arcdrvCommand: WR(0xFD040020) = 0x00000202 (cmdData[0])
arcdrvCommand: WR(0xFD040020) = 0x00504F46 (cmdData[1])
arcdrvCommand: WR(0xFD040018) = 0x000000B1 (hcvr=WRITE_COMMAND)
arcdrvCheckReplyFlags: RD(0xFD040014) hstr=0x0000000A (DONE) try #0
arcdrvCheckReplyFlags: WR(0xFD040018) hcvr=0x00000085 (CLEAR_REPLY_FLAGS)
CheckReplyFlags: return DONE
ioctl OK cmd=0106 'POF' arg=-1 -1 -1 -1 -1 reply=FFFFFFFF

arcdrvTestEXP: Free allocated memory

arcdrvTestEXP: Close device '/arc0' with fd=30

arcdrvTestEXP: done
value = 20 = 0x14
lted->
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