



serial
C A B L E S

Atlas2 CDFP Host Adapter Card

PCI5-AD-x16HE-CDFPx8



User's Manual

REV: 1.0

March. 2025

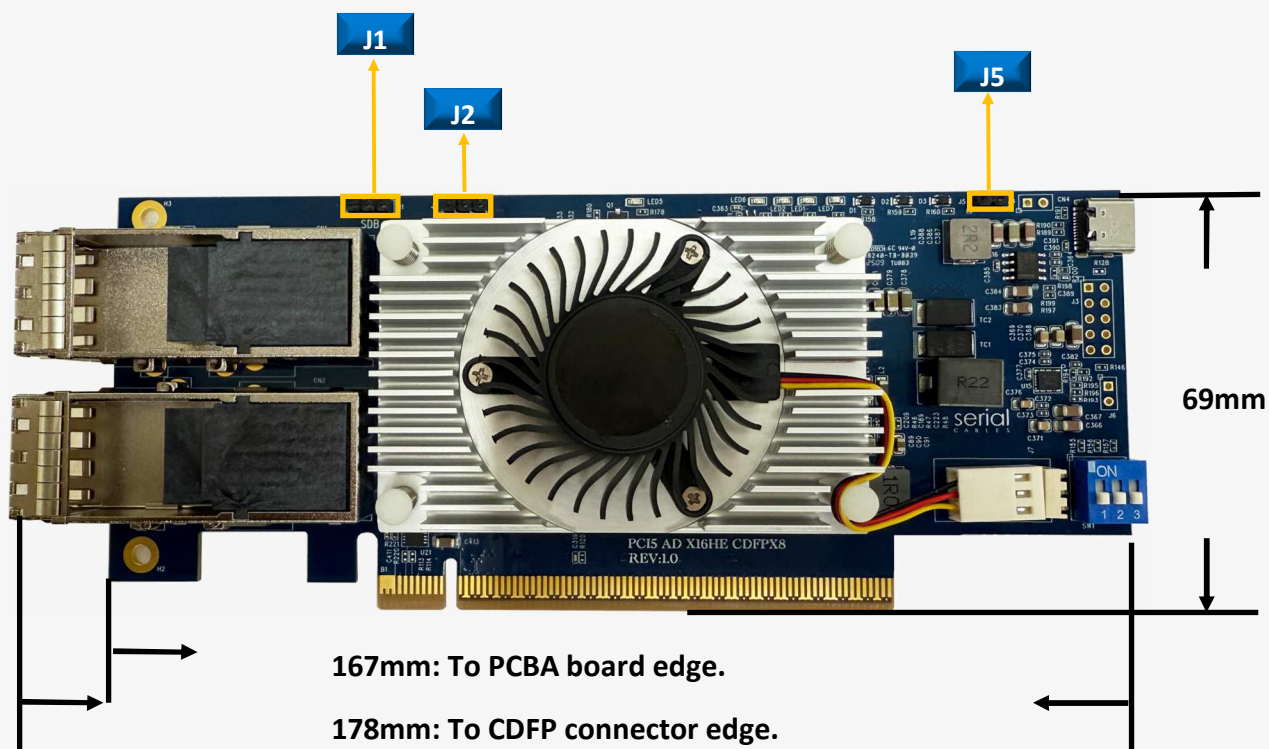


Change history

REV	Change history
Rev1.0	Preliminary released.



Function Description For Headers



Location	Descriptions	Pinout
J5	ON: MCU without SDB of switch control for debug purpose (etc. needs to access Atlas2 PCIe switch via SDB) OFF: MCU is able to access switch information via SDB (default)	
J1	Atlas2 switch SDB port. UART with 3.3V TTL signals level	TX/RX/GND
J2	Atlas2 switch UART port, require Atlas2 FW support UART with 3.3V TTL signals level	TX/RX/GND



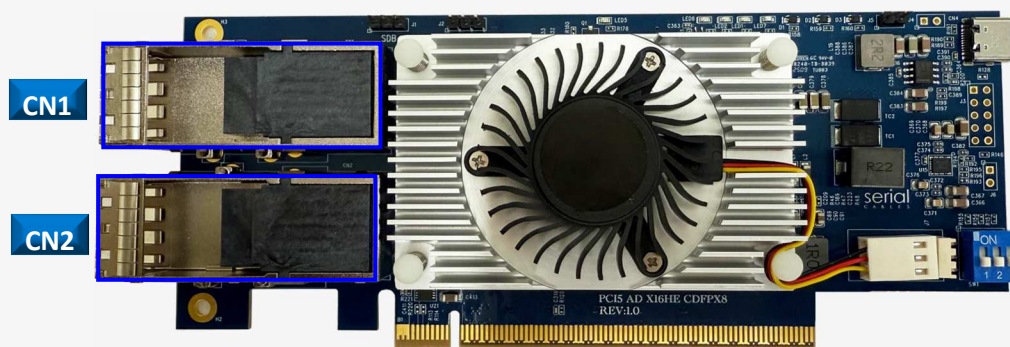
Function Description For Connectors



Location	Descriptions
CN1/CN2	X8 CDFP Connector.
CN4	Type-C USB connector for CLI commands.
SW1	Slide switch reserved for further used.



CDFP Pins Definition



CN1				
Pins	A	B	C	D
2	PCIE_S1_TX17_P	PCIE_S1_TX18_P	PCIE_S1_RX17_P	PCIE_S1_RX18_P
3	PCIE_S1_TX17_N	PCIE_S1_TX18_N	PCIE_S1_RX17_N	PCIE_S1_RX18_N
5	PCIE_S1_TX16_P	PCIE_S1_TX19_P	PCIE_S1_RX16_P	PCIE_S1_RX19_P
6	PCIE_S1_TX16_N	PCIE_S1_TX19_N	PCIE_S1_RX16_N	PCIE_S1_RX19_N
8	CDFPA_FIO_1	CDFPA_2WCL	CDFPA_FIO_3	CDFPA_SCL
9	CDFPA_FIO_2	CDFPA_2WDA	CDFPA_FIO_4	CDFPA_SDA
11	PCIE_S1_TX23_P	PCIE_S1_TX20_P	PCIE_S1_RX23_P	PCIE_S1_RX20_P
12	PCIE_S1_TX23_N	PCIE_S1_TX20_N	PCIE_S1_RX23_N	PCIE_S1_RX20_N
14	PCIE_S1_TX22_P	PCIE_S1_TX21_P	PCIE_S1_RX22_P	PCIE_S1_RX21_P
15	PCIE_S1_TX22_N	PCIE_S1_TX21_N	PCIE_S1_RX22_N	PCIE_S1_RX21_N
17	NC	CDFPA_RST#	NC	CDFPA_PRPE



CDFP Pins Definition (cont.)

CN2				
Pins	A	B	C	D
2	PCIE_S1_TX25_P	PCIE_S1_TX26_P	PCIE_S1_RX25_P	PCIE_S1_RX26_P
3	PCIE_S1_TX25_N	PCIE_S1_TX26_N	PCIE_S1_RX25_N	PCIE_S1_RX26_N
5	PCIE_S1_TX24_P	PCIE_S1_TX27_P	PCIE_S1_RX24_P	PCIE_S1_RX26_N
6	PCIE_S1_TX24_N	PCIE_S1_TX27_N	PCIE_S1_RX24_N	PCIE_S1_RX27_N
8	CDFPB_FIO_1	CDFPB_2WCL	CDFPB_FIO_3	CDFPB_SCL
9	CDFPB_FIO_2	CDFPB_2WDA	CDFPB_FIO_4	CDFPB_SDA
11	PCIE_S1_TX31_P	PCIE_S1_TX28_P	PCIE_S1_RX31_P	PCIE_S1_RX28_P
12	PCIE_S1_TX31_N	PCIE_S1_TX28_N	PCIE_S1_RX31_N	PCIE_S1_RX28_N
14	PCIE_S1_TX30_P	PCIE_S1_TX29_P	PCIE_S1_RX30_P	PCIE_S1_RX29_P
15	PCIE_S1_TX30_N	PCIE_S1_TX29_N	PCIE_S1_RX30_N	PCIE_S1_RX29_N
17	NC	CDFPB_RST#	NC	CDFPB_PRPE



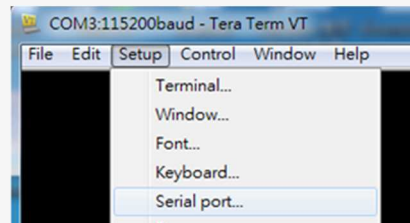
MCU CLI Setup

Step2: Tera-term setting

Step 1. Install and launch Tera Term application
(or Hyper Terminal requires version 3.0 or higher).



Step 2: To ensure proper communications between host adapter card and the VT100 Terminal emulation, please configure the VT100 Terminal emulation settings to the values shown below:



Step 3:

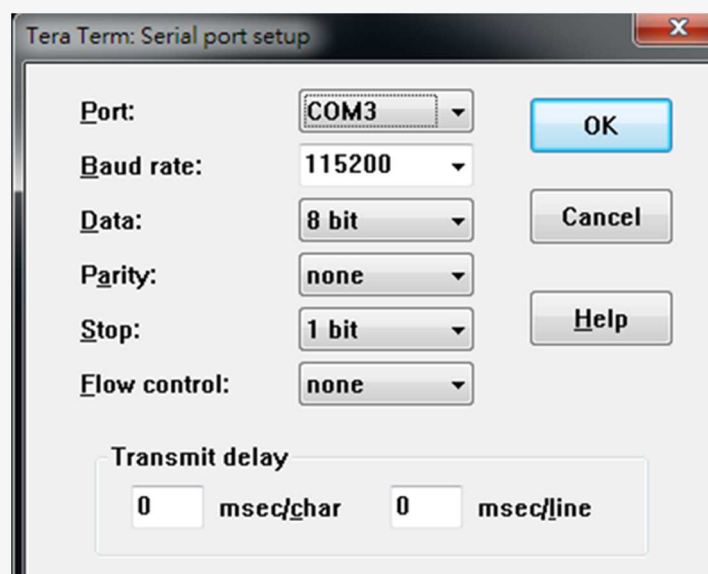
For “Port”, select COM3 in this example. (Depend on which COM port used on Host)

For “Baud rate”, select 115200.

For “Data”, select 8 bit. For “Parity”, select none.

For “Stop”, select 1 bit. For “Flow control”, select: none.

Click OK when you have finished your selections.





MCU Commands List

Commands	Description
fdl	Update the configuration file or FW for PCIe switch also for MCU firmware upgrading.
lsd	Shows switch temperature, FAN speed, and critical voltages in HBA.
mw	Write 32bits data into any register as defined in Atlas2 switch
dr	Dump the values of Atlas2 switch for any register with specified address.
dp	Dump the values of Atlas2 switch for any register with specified port number.
df	Dump the values of Atlas2 flash with specified address.
ssdrst	Issue 300ms duration PERST# in pin B17 of CDFP connectors.
showport	Show link status for USP in golden finger, DSP for CDFP ports.
bist	On-board I2C devices diagnostic.
iicwr	SMBus data read from drive attached in CDFP ports.
iicw	SMBus data write to drive attached in CDFP ports.
ver	Shows card information, MCU FW and Atlas2 FW version.
sysinfo	Show all of information in CDFP HBA.
reset	MCU FW reset (not including Atlas2 PCIe switch)



fdl Command

Update the configuration file or FW for PCIe switch also for MCU firmware upgrading.

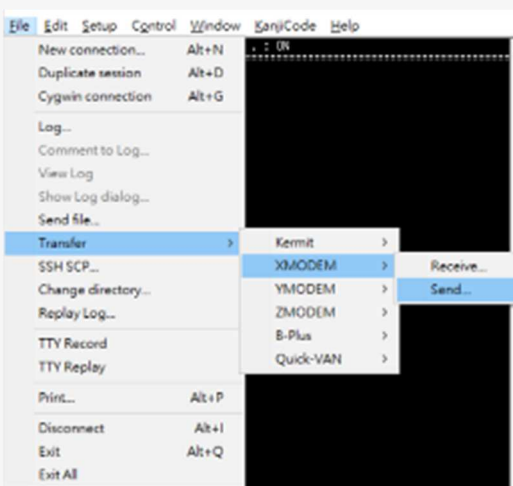
-Usage: fdl sbr|fw|mfg|MCU

```
File Edit Setup Control Window KanjiCode Help
fdl :
  Xmodem download image.
  - Usage: fdl <sbr|fw|mcu>
  - sbr : update sbr into switch.
  - fw  : update fw into switch.
  - mcu : update fw into MCU.
```

sbr=update the SBR file into flash of Atlas2 switch. (Applicable in base switch mode)

fw=program or upgrade FW into flash of Atlas2 switch (Applicable in Synthetic mode)

mcu=on-board MCU FW upgrading





Isd Command

Shows switch temperature, FAN speed, and critical voltages in HBA.

-Usage: Isd

```
File Edit Setup Control Window KanjiCode Help
Cmd>Isd
Thermal:
  Switch Temperature : 49 degree
Fans Speed:
  Switch Fan : 5199 rpm
Voltage Sensors:
  12V Voltage : 11776 mV
  1.8V Voltage : 1788 mV
  1.84V Voltage : 1846 mV
  1.25V Voltage : 1264 mV
  0.8V Voltage : 811 mV
```

Thermal: Temperature sensor near Atlas2 PCIe switch

Fan Speed: The FAN TACH value reading.

Voltage sensors: Main voltages monitoring in Atlas2 host card.



mw Command

Write 32bits data into any register as defined in Atlas2 switch

-Usage: mw <register(H)> <data(H)>

-register(H) : register should be 0x00000000 ~ 0xFFFFFFFFC

-data(H) : data should be 0x00000000 ~ 0xFFFFFFFF

```
File Edit Setup Control Window KanjiCode Help
mw fff0017c ffffffff
Cmd>
```

Write data "0xFFFFFFFF" into register address "0xFFF0017C" of Atlas2 PCIe switch



dr Command

Dump the values of Atlas2 switch for any register with specified address.

-Usage: dr <register<H> [count(H)]

-register(H) : register should be 0x00000000 ~ 0xFFFFFFFF

-count(H) : count should be 0x00000000 ~ 0xFFFFFFFF

```
File Edit Setup Control Window KanjiCode Help
Cmd>dr 60800000
60800000:c0341000 00100007 060400a0 00010010
60800010:f9000000 00000000 00291718 000001f1
60800020:0000ffff 0001fff1 00000000 00000000
60800030:000000ff 00000040 00000000 0010010b
60800040:c8034801 00000008 03866805 00000000
60800050:00000000 00000000 00000000 00000000
60800060:00000000 00000000 0052a410 00648004
60800070:00090820 0042ed05 01050000 00000000
60800080:00000000 00000000 00000000 00350840
60800090:00000000 81803f3e 011e0005 00000000
608000a0:00000000 0000000d 00321000 00000000
608000b0:00000000 00000000 00000000 00000000
608000c0:00000000 00000000 00000000 00000000
608000d0:00000000 00000000 00000000 00000000
608000e0:00000000 00000000 00000000 00000000
608000f0:00000000 00000000 00000000 00000000
```

Dump the values in Atlas2 switch registers, start from address "0x60800000" .

```
File Edit Setup Control Window KanjiCode Help
Cmd>dr 60800000 4
60800000:c0341000
```

Dump the values in Atlas2 switch registers, start from address "0x60800000" with 4bytes count.



dp Command

Dump the values of Atlas2 switch for any register with specified port number.

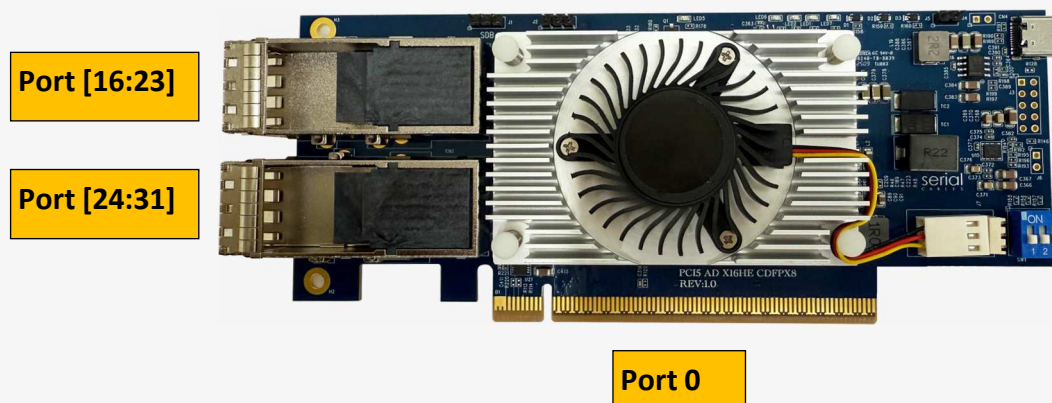
-Usage: dp port_number(D)

-port_number(D) : port_number should be 0 ~ 31

```
File Edit Setup Control Window KanjiCode Help
Cmd>dp 0
60800000:c0341000 00100006 060400a0 00010010
60800010:fa000000 00000000 00160403 000001f1
60800020:0000ffff 0001ffff 00000000 00000000
60800030:00000000 00000040 00000000 00000128
60800040:c8034801 00000008 03866805 00000000
60800050:00000000 00000000 00000000 00000000
60800060:00000000 00000000 0052a410 012c8004
60800070:00090020 0042ed05 01030000 00000000
60800080:00000000 00000000 00000000 00350840
60800090:00000000 81803f3e 011e0003 00000000
608000a0:00000000 0000000d 00321000 00000000
```

Dump the values in Atlas2 switch registers for Port "0".

Port number mapping





df Command

Dump the values of Atlas2 flash with specified address.

-Usage: df address(H) [count(H)]

-address(D) : address should be 0x00000000 ~ 0xFFFFFFFF

-count(H) : count should be 0x00000000 ~ 0xFFFFFFFF

```
File Edit Setup Control Window KanjiCode Help
Cmd>df 400
00000400:3ba234c0 00020000 60020000 60040000
00000410:10000000 70040000 10000000 00000000
00000420:01000000 00000000 01000000 00000000
00000430:01000000 00000000 01000000 00000000
00000440:01000000 00000000 01000000 00000000
00000450:01000000 00000000 01000000 00000000
00000460:01000000 00000000 01000000 80040000
00000470:38040000 00000000 01000000 00240040
00000480:92000000 00000000 00000000 00000000
00000490:4c30908c 80000100 01000000 02000000
000004a0:3c140128 051ebb00 00022805 00000000
000004b0:00000000 00ff7100 00000000 0000c029
000004c0:08f09fe5 00f020e3 00f020e3 08f09fe5
000004d0:00000000 00000000 00000000 00000000
000004e0:00000000 00000000 00000000 00000000
000004f0:00000000 00000000 00000000 00000000
```

Dump the values in Atlas2 flash registers, start from address "0x00000400".

```
File Edit Setup Control Window KanjiCode Help
Cmd>df 400 4
00000400:3ba234c0
```

Dump the values in Atlas2 flash registers, start from address "0x00000400" with 4bytes count.



ssdrst Command

Issue 300ms duration PERST# in pin B17 of CDFP connectors.

-Usage: ssdrst <con(D)|all>

-con(D) : con number should be 0 ~ 1

```
File Edit Setup Control Window KanjiCode Help
Cmd>ssdrst 1
Reset con 1 success
Cmd>
```

Issue PERST# signals in MCIO CON1.

```
File Edit Setup Control Window KanjiCode Help
Cmd>ssdrst all
Reset all con success
Cmd>
```

Issue PERST# signals in CDFP CON0 and CON1.

CON Mapping





showport Command

Shows link status for USP in golden finger, DSP for CDFP ports.

-Usage: showport

Refer to page 15 for CON number mapping.

```
File Edit Setup Control Window KanjiCode Help
showport
Atlas2 chip ver: A0
=====
Upstream
=====
USP: port 0, speed = Gen5, width = 16, max_speed = Gen5, max_width = 16
=====
Downstream
=====
Con0: port 16, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 17, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 18, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 19, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 20, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 21, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 22, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 23, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 24, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 25, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 26, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 27, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 28, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 29, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 30, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 31, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
```

↓
Negotiated link speed/width

↓
Maximum link width



bist Command

On-board I2C devices diagnostic.

- Usage: bist

```
File Edit Setup Control Window KanjiCode Help
Cmd>bist

Scan I2C channel 1 devices ....
Device address:0xe2 ok.
```

Show all of on-board I2C devices for debug purpose.



iicwr Command

SMBus data read from drive attached in CDFP ports.

-Usage: iicwr <Addr(H)> <con(D)> <ReadByte(D)> <WriteData(H)>

-Addr(H) : Device address

C-on(D) : Con should be 0 ~ 4

-ReadByte(D) : Max read byte is 32 byte

-WriteData(D) : Max write byte is 32 byte

Ex : iicwr d4 1 8 0

```
File Edit Setup Control Window KanjiCode Help
Cmd>iicwr d4 1 8 0
Data [0] = 6
Data [1] = 7b
Data [2] = 1f
Data [3] = 1a
Data [4] = 0
Data [5] = 0
Data [6] = 0
Data [7] = 26
```

Read 8 bytes data starts from register "0" of I2C slave address "0xd4" in drive which attaches in CON1

CON1:PinB8/B9

CON2:PinD8/D9

CON3:PinB8/B9

CON4:PinD8/D9





iicw Command

SMBus data write to drive attached in CDFP ports.

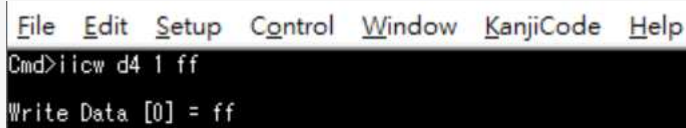
-Usage: iicw <Addr(H)> <conD> <WriteData(H)...>

-Addr(H) : Device address

-con(D) : Con should be 0 ~ 4

-WriteData(D) : Max write byte is 128 byte

Ex : iicw d4 1 ff



```
File Edit Setup Control Window KanjiCode Help
Cmd>iicw d4 1 ff
Write Data [0] = ff
```

Write data "0xff" to I2C slave address "0xd4" in drive which attaches in CDFP CON 1.

Refer to page 18 for CON number mapping.



ver Command

Shows card information, MCU FW and PCIe switch FW version.

-Usage: ver

```
File Edit Setup Control Window KanjiCode Help
SN :
Company : Serial Cables
Model : ATLAS2 CDFP HOST CARD
Version : 0.0.1 Date : Mar 7 2025 19:07:36
=====
Atlas2 Firmware Revision Information:-
=====
Active Firmware: unknown
Version : unknown
Platform: unknown
```



sysinfo Command

Show all of information in CDFP HBA.

Sysinfo command is for host card diagnostic, it combines ver, lsd, showport, and bist commands.

- Usage: sysinfo

```
File Edit Setup Control Window KanjiCode Help
Cmd>sysinfo
=====
ver
=====
SN      :
Company : Serial Cables
Model   : ATLAS2 CDFP HOST CARD
Version : 0.0.1    Date : Mar 7 2025 19:07:36
=====
Atlas2 Firmware Revision Information:-
=====
Active Firmware: unknown
Version : unknown
Platform: unknown
=====
lsd
=====
Thermal:
  Switch Temperature : 25 degree
Fans Speed:
  Switch Fan : 5191 rpm
Voltage Sensors:
  12V Voltage : 11776 mV
  1.8V Voltage : 1788 mV
  1.8AV Voltage : 1846 mV
  1.25V Voltage : 1264 mV
  0.8V Voltage : 815 mV
=====
showport
=====
Atlas2 chip ver: A0
=====
Upstream
=====
USP: port 0, speed = Gen5, width = 16, max_speed = Gen5, max_width = 16
=====
Downstream
=====
Con0: port 16, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 17, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 18, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 19, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 20, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 21, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 22, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con0: port 23, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 24, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 25, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 26, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 27, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 28, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 29, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 30, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
Con1: port 31, speed = Gen5, width = 1, max_speed = Gen5, max_width = 1, cable_pre = No
=====
bist
=====
Scan I2C channel 1 devices ....
Device address:0xe2 ok.
```



reset Command

MCU FW reset (It won't reset Atlas2 PCIe switch)

-Usage: reset

```
File Edit Setup Control Window KanjiCode Help
Cmd>reset
System Reset...
Cmd>
```