



serial
C A B L E S

Atlas Host Internal Adapter Card



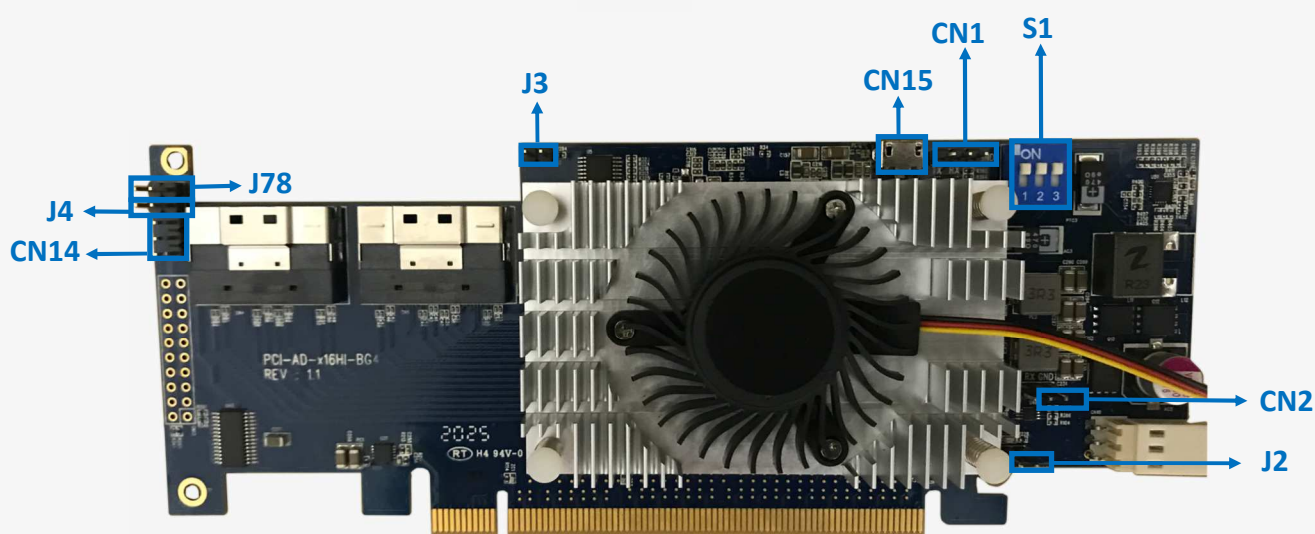
User's Manual

REV: 1.2

Oct. 2020



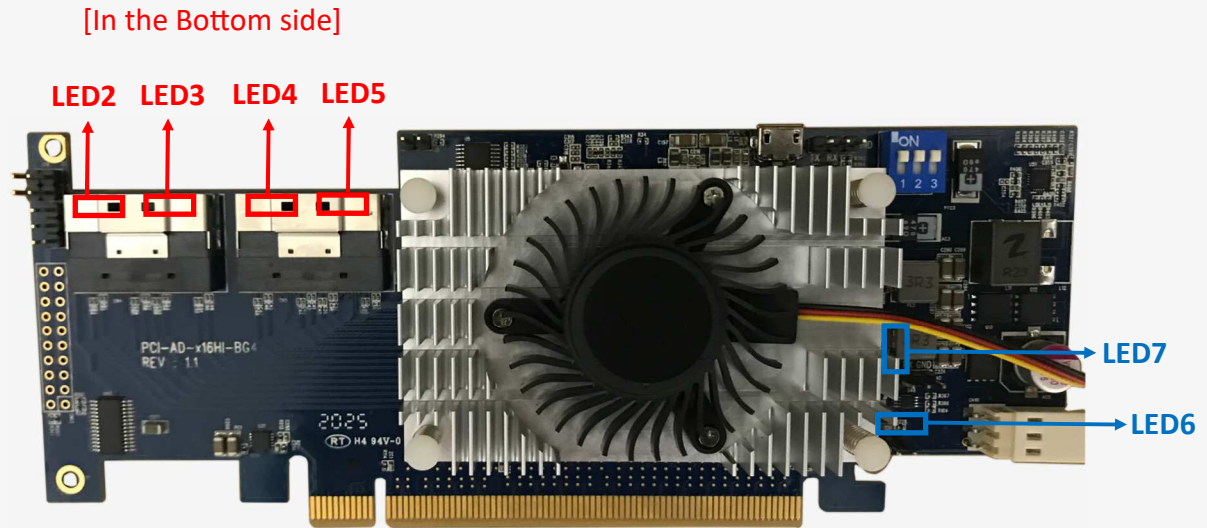
Headers And Connectors



Location	Descriptions	Pinout
J78	ON: uP in FW upgrading mode OFF: uP in normal operation mode (default)	
J4	ON: uP without SDB of switch control for debug purpose OFF: uP is able to access switch information via SDB (default)	
CN14	For debug purpose	
J3	ON: uP in USB boot mode for FW programming OFF: uP is normal operation (default)	
CN15	Micro-USB connector for CLI commands	
CN1	Atlas switch SDB port. UART with 3.3V TTL signals level	TX/RX/GND
S1	Reserve for further used	
CN2	Atlas switch UART port, require Atlas FW support UART with 3.3V TTL signals level	TX/RX/GND
J2	ON: Force Atlas switch in boot loader mode. OFF: Atlas switch working in normal operation mode (default)	



Function Description For LEDs



Location	Color	Description
LED7	Blue	<u>Atlas switch Heartbeat LED</u> Blinking: Indicates the Atlas switch working in Synthetic switch mode Solid ON: Indicates the Atlas switch working in base fanout switch mode
LED6	Red	<u>Atlas switch failure LED</u> Solid ON: indicates failure detected in Atlas switch
LED2/3/4/5	Red	<u>Port link matching LED</u> Each LED corresponds to SlimSAS port. LED2:Port 16, LED3:Port 20, LED4:Port 24, LED5 Port 28. All LEDs light when on any drive attached in host card. Case 1: Having a x4 device attached in port 16. LED2 turns off if the device links at x4 link width. Case 2: Having a 2x2 dual ports device attached in port 16/18. LED2 turns off if the device links at 2x2 link width. LED2 keep lighting if either port 16 or 18 not link at x2 link width. Case 3: Connecting to device with x8 SlimSAS cable. LED 2 and LED3 turn off means whole port link at x8 link width. Either LED2 or LED3 lighting means port 16 or port 20 not link at x4 link width.



Signals In X8 SlimSAS Connector

X8 SlimSAS Connector				
Pin No	Pin Names		Pin No	Pin Names
A2	RX_P7		B2	TX_P7
A3	RX_N7		B3	TX_N7
A5	RX_P6		B5	TX_P6
A6	RX_N6		B6	TX_N6
A8	REF_CLK_P3		B8	I2C_SCL_1
A9	REF_CLK_N3		B9	I2C_SDA_1
A11	REF_CLK_P2		B11	PERST#_3
A12	REF_CLK_N2		B12	PERST#_2
A14	RX_P5		B14	TX_P5
A15	RX_N5		B15	TX_N5
A17	RX_P4		B17	TX_P4
A18	RX_N4		B18	TX_N4
A20	RX_P3		B20	TX_P3
A21	RX_N3		B21	TX_N3
A23	RX_P2		B23	TX_P2
A24	RX_N2		B24	TX_N2
A26	REF_CLK_P1		B26	I2C_SCL_0
A27	REF_CLK_N1		B27	I2C_SDA_0
A29	REF_CLK_P0		B29	PERST#_1
A30	REF_CLK_N0		B30	PERST#_0
A32	RX_P1		B32	TX_P1
A33	RX_N1		B33	TX_N1
A35	RX_P0		B35	TX_P0
A36	RX_N0		B36	TX_N0

RX is PCIe signals of Atlas switch receiver, TX is PCIe signals transmit from Atlas switch.



USB Driver Installation

Download and install the CDC driver for unidentified device(VID_03EB&PID_2018)

Available at: https://www.serialcables.com/wp-content/uploads/2018/11/SynergyUSBCDC_20180518.rar

Note: No USB driver is required for Windows 10 and Linux

Figure 1

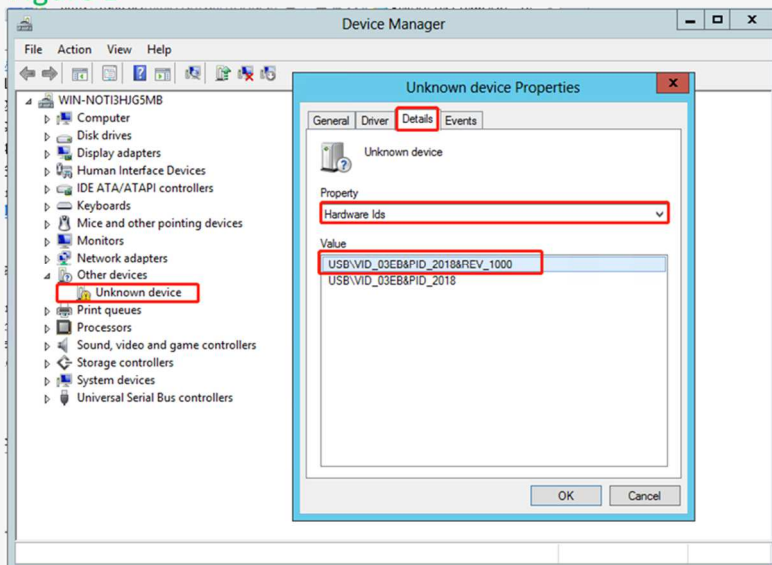


Figure 2

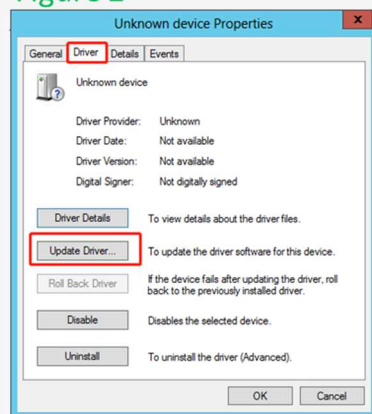


Figure 3

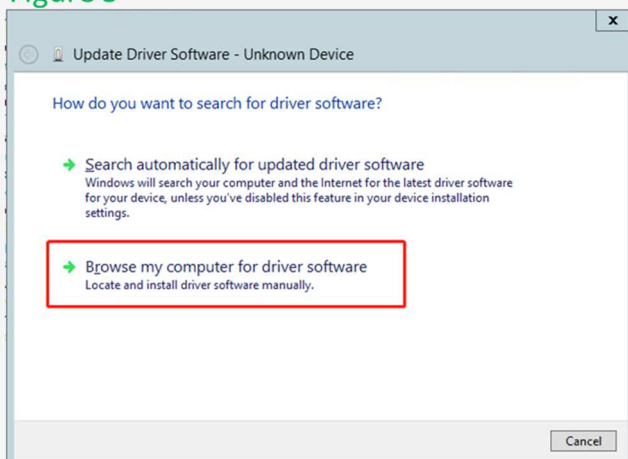
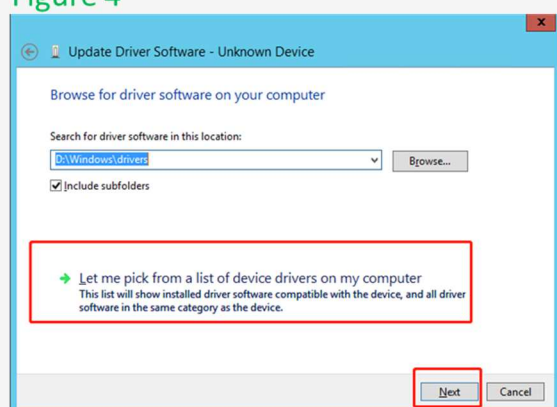


Figure 4





USB Driver Installation

Figure 5

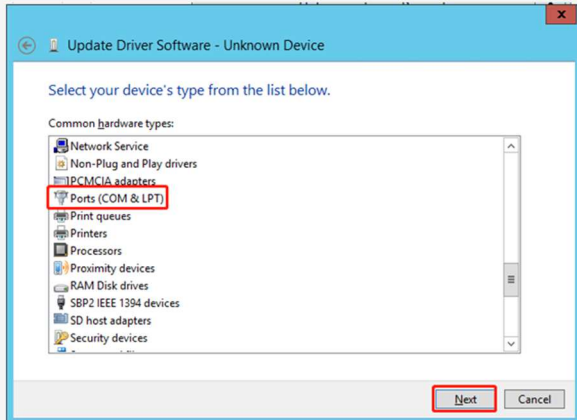


Figure 6

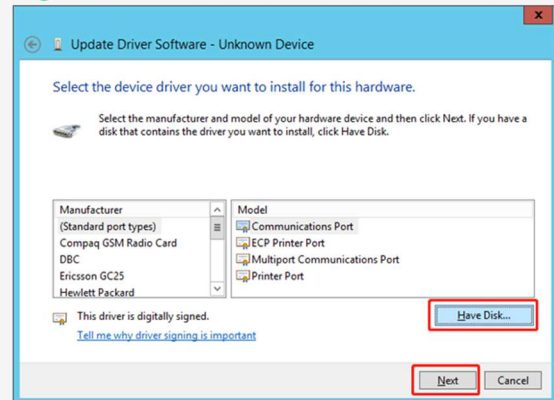


Figure 7

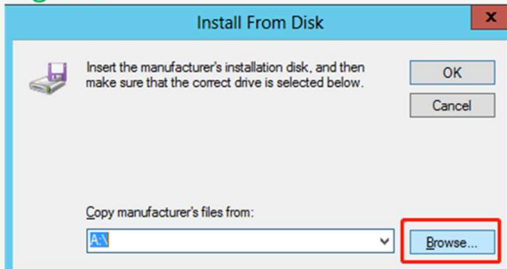


Figure 8

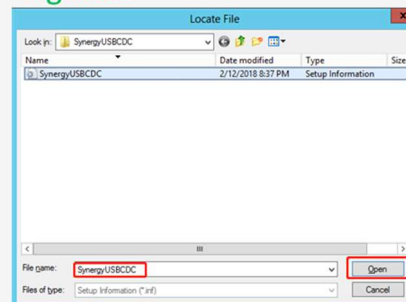


Figure 9



Figure 10

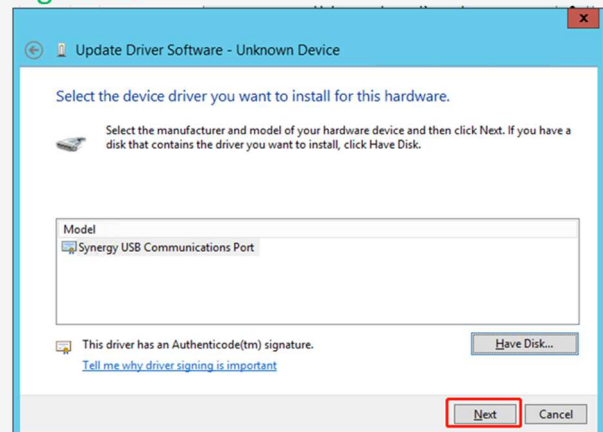
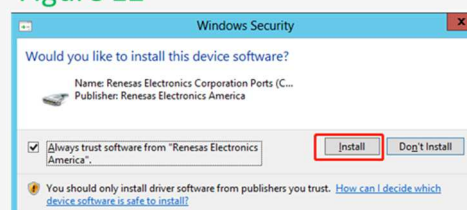


Figure 11



Figure 12





USB Driver Installation

Figure 13

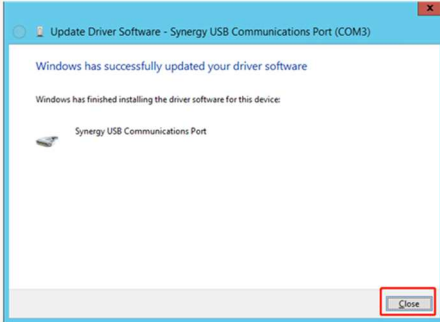


Figure 14

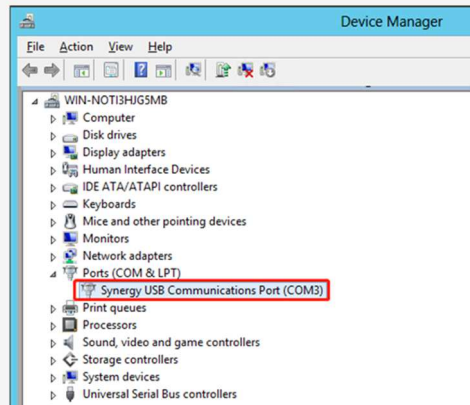
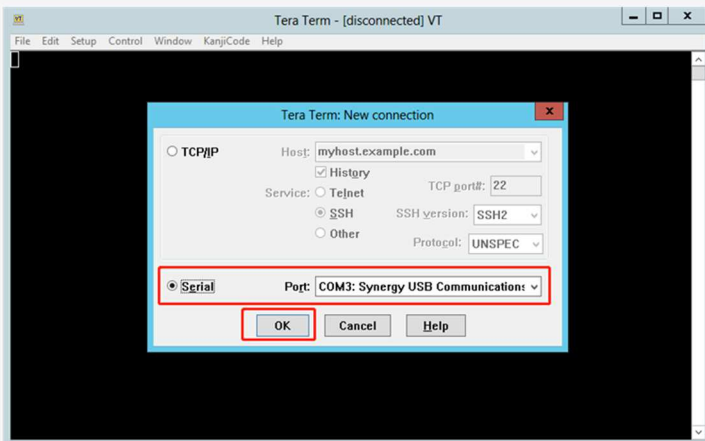


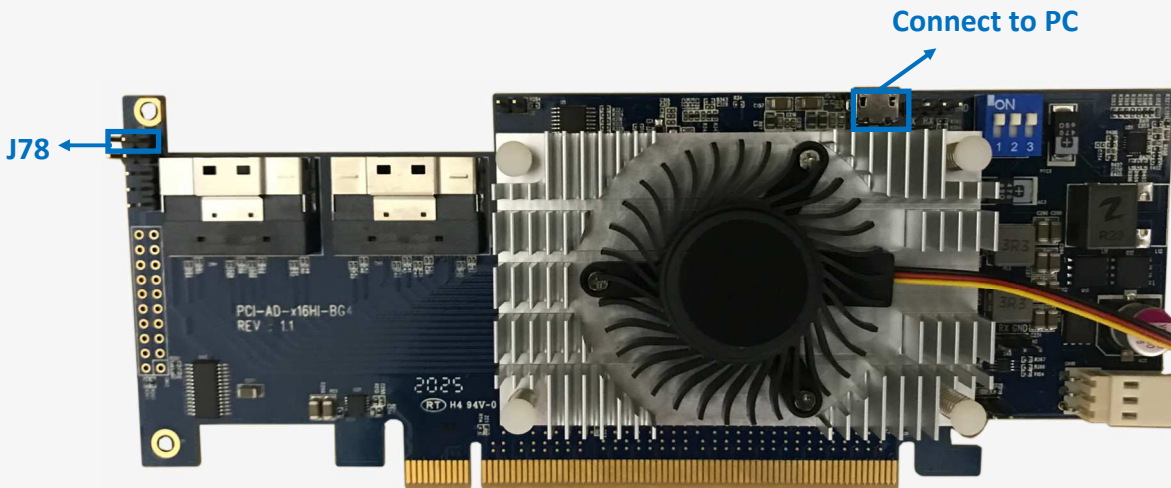
Figure 15





uP Synergy FW Upgrading

Step 1: Have jumper J78 ON to force uP enter FW upgrading mode.



Step 2: Install SlimSAS host adapter card into PCIe slot of server, and connect Micro USB port to PC which used for FW upgrading, then power on the PC.

Step 3:

- a.) it will show an added USB device in PC.
- b.) copy upgrading FW(i.e `ut_slimsas_host_card_v006.srec`) into the folder of FW.
- c.) copy update.txt in the root folder.

名稱	日期	類型	大小	時間
Config	2017/1/1 上午 12:00	檔案資料夾		
FW	2017/1/1 上午 12:00	檔案資料夾		
Web	2017/1/1 上午 12:00	檔案資料夾		
device_info.txt	2017/1/1 上午 12:00	文字文件	1 KB	
update.txt	2018/2/9 下午 06:02	文字文件	1 KB	

Step 4: Disconnect the USB connection, then remove the jumper from J78.
Power cycle the server to apply new FW.



Atlas SlimSAS Host Card Commands List

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

lsd :
  Show environmental conditions information.
  - Usage: lsd

mw :
  Write 32-bit data to register.
  - Usage: mw <register(H)> <data(H)>
  - register(H) : register should be 0x00000000 ~ 0xFFFFFFFF
  - data(H) : data should be 0x00000000 ~ 0xFFFFFFFF

dr :
  Dump switch-specific registers.
  - Usage: dr <register(H)> [count(H)]
  - register(H) : register should be 0x00000000 ~ 0xFFFFFFFF
  - count(H) : count should be 0x00000000 ~ 0xFFFFFFFF

dp :
  Dump switch port-specific registers.
  - Usage: dp <port_number(D)>
  - port_number(D) : port_number should be 0 ~ 31

df :
  Dump switch-specific flash.
  - Usage: df <address(H)> [count(H)]
  - address(D) : address should be 0x00000000 ~ 0xFFFFFFFF
  - count(H) : count should be 0x00000000 ~ 0xFFFFFFFF

ssdrst :
  Reset com.
  - Usage: ssdrst <con(D)|all> [channel(C)]
  - con(D) : con number should be 1 ~ 4
  - channel(C) : channel should be a or b
  - Ex: ssdrst 1
  - Ex: ssdrst 1 a
  - Ex: ssdrst all
  - Ex: ssdrst all a

showport :
  Display link speed and link width information.
  - Usage: showport

scan :
  Scan device of i2c bus.
  - Usage: scan

spread :
  Set PCIe clock spread.
  - Usage: spread [on|off]

clk :
  Set PCIe clock output enable.
  - Usage: clk [en|dis]

ver :
  Show microcontroller firmware version.
  - Usage: ver

reset :
  System reset.
  - Usage: reset
```



fdl Command

Update the configuration file or firmware for Atlas PCIe switch.

Usage: fdl cfg|sbr|fw|mfg

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

sbr=update the SBR file into the flash of Atlas switch for fan-out switch mode.

fw=program or upgrade the FW into the flash of Atlas switch.

mfg=update mfg into the flash of Atlas switch.

lsd Command

Shows temperature, FAN speed, voltages, and DPR support.

Usage: lsd

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

Thermal:
  Switch Temperature 1: 38 degree
Fan Speed:
  Switch Fan : 4279 rpm
Voltage Sensor:
  12V Voltage : 11901 mV
  1.8V Voltage : 1798 mV
  0.9V Voltage : 879 mV
Station 1 DPR: Enable
```

mw Command

Write 32bits data to registers

-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>
```



dp Command

Dump switch port-specific registers.

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:c0101000 00100000 060400b0 00010000
60800010:00000000 00000000 001e1e00 000001f1
60800020:0000ffff 0001ffff 00000000 00000000
60800030:00000000 00000040 00000000 00000100
60800040:c8034801 00000008 01866805 00000000
60800050:00000000 00000000 00000000 00000000
60800060:00000000 00000000 0052a410 012c8004
60800070:00000020 0062e014 00010000 00000060
60800080:00001508 00000000 00000000 00150860
60800090:00000000 01801f1e 03010004 00000000
608000a0:00000000 0000000d a0321000 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
60800100:fb410003 53545050 00805e10 00000000
60800110:00000000 00000000 00000000 00000000
```

df Command

Dump switch port-specific registers.

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:c43d10c0 fc010000 c0000000 bc020000
00000410:10000000 00000000 01000000 00000000
00000420:01000000 00000000 01000000 00000000
00000430:01000000 00000000 01000000 00000000
00000440:01000000 00000000 01000000 cc020000
00000450:a8090000 00000000 00000000 fda30040
00000460:92000000 00000000 00024d41 80a40000
00000470:00000000 00000000 00000000 00000000
00000480:00000000 00040000 00000c00 00000000
00000490:00000000 00000000 00000000 00000000
000004a0:00000000 00000000 00000000 00000000
000004b0:00000000 78100000 00009fe5 00f0a0e1
000004c0:03000000 00000000 00000000 00000000
000004d0:00000000 00000000 00000000 00000000
000004e0:02000000 55555555 00000000 00000000
000004f0:00000000 00000000 00000000 00000000
Cmd>df 400 4
00000400:c43d10c0
Cmd>
```



ssdrst Command

Issue PERST# from uP to device

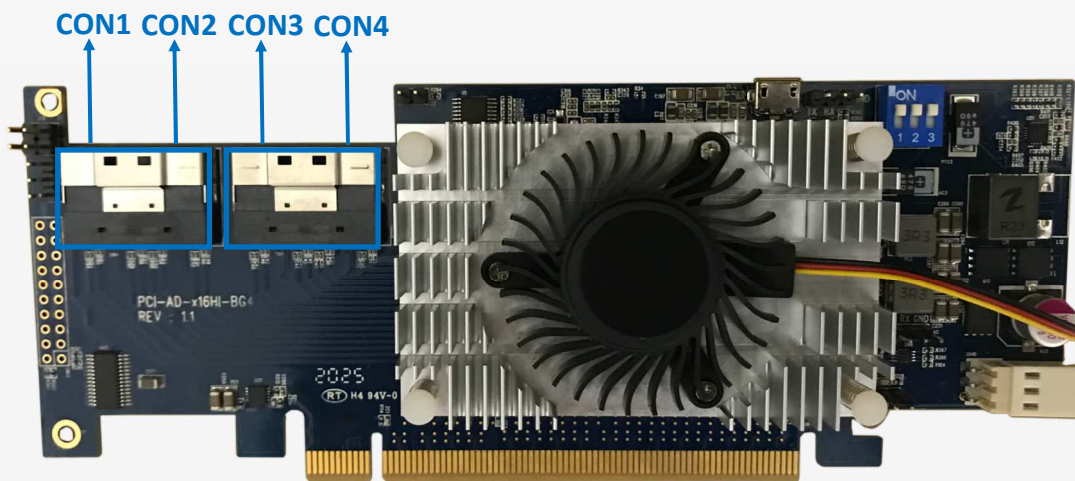
-Usage: ssdrst <con(D)|all> [channel(C)]

con(D) : con number should be 1 ~ 4

channel(C) : channel number should be a or b

Channel a: The 1st PHY of dual port drive

Channel b: The 2nd PHY of dual port drive



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

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

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

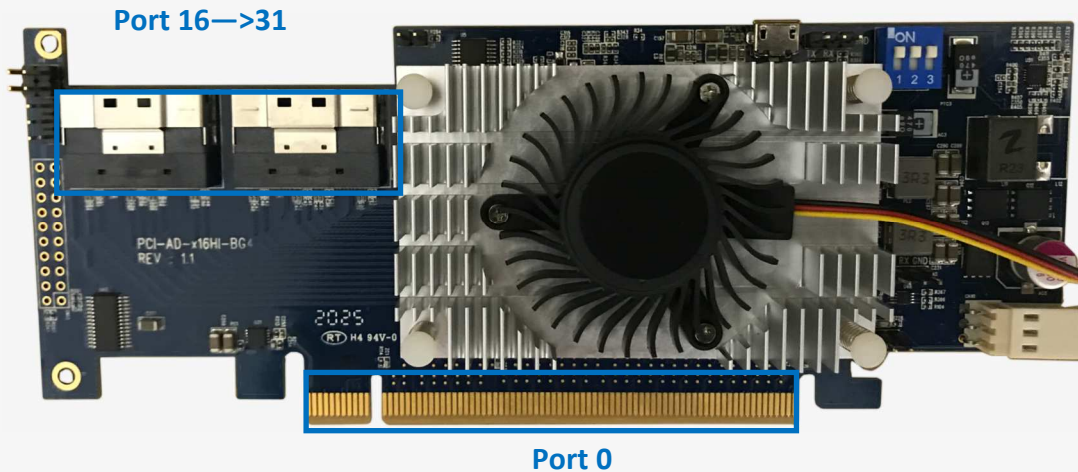
```
File Edit Setup Control Window KanjiCode Help
Cmd>ssdrst all b
Reset channel b of all con success
Cmd>
```



showport Command

Shows ports link speed and link width information.

Usage: showport



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

Atals chip ver: B0
=====
Upstream
=====
Port 0: speed = Gen3, width = 16, max_speed = Gen4, max_width = 1
=====
Downstream
=====
Port 16: speed = Gen4, width = 4, max_speed = Gen4, max_width = 4
Port 20: speed = Gen1, width = 0, max_speed = Gen4, max_width = 1
Port 21: speed = Gen1, width = 0, max_speed = Gen4, max_width = 1
Port 22: speed = Gen1, width = 0, max_speed = Gen4, max_width = 1
Port 23: speed = Gen1, width = 0, max_speed = Gen4, max_width = 1
Port 24: speed = Gen1, width = 0, max_speed = Gen4, max_width = 1
Port 25: speed = Gen1, width = 0, max_speed = Gen4, max_width = 1
Port 26: speed = Gen1, width = 0, max_speed = Gen4, max_width = 1
Port 27: speed = Gen1, width = 0, max_speed = Gen4, max_width = 1
Port 28: speed = Gen1, width = 0, max_speed = Gen4, max_width = 1
Port 29: speed = Gen1, width = 0, max_speed = Gen4, max_width = 1
Port 30: speed = Gen1, width = 0, max_speed = Gen4, max_width = 1
Port 31: speed = Gen1, width = 0, max_speed = Gen4, max_width = 1
```

Atlas SlimSAS host card support DPR (Dynamic port reconfiguration) features.

The default setting is set all downstream ports to x1 ports.

If attached a x4 device in port 16, it will combine 16/17/18/19 ports to a one x4 port, and shows port information from 16 to 20, 21...and 31.



Scan Command

Scan all I2C devices in SlimSAS host card

Usage: scan

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

Scan I2C channel 0 devices ....
Device address:0x40 found
Device address:0x42 found
Device address:0xa2 found
```

Spread Command

Show spread information or set Atlas switch working in -0.5% SSC frequency.

Usage: spread

```
File Edit Setup Control Window KanjiCode Help
Cmd>spread
Spread status:off
Cmd>
```

Usage: spread on

It requires card power cycle to apply the “spread” setting.

```
File Edit Setup Control Window KanjiCode Help
Cmd>spread on
OK, turn on spread
Cmd>
```

clk Command

Show the clock output status or disable the clock output for all downstream ports.

Usage: clk

```
File Edit Setup Control Window KanjiCode Help
Cmd>clk
DIFF1 output enable
DIFF2 output enable
DIFF3 output enable
DIFF4 output enable
DIFF5 output enable
DIFF6 output enable
DIFF7 output enable
DIFF8 output enable
DIFF9 output enable
```

Usage: clk dis/en

Clock output disable/enable feature is dynamic changing, without card reset or power cycle.

```
File Edit Setup Control Window KanjiCode Help
Cmd>clk dis
OK, clock output disable
Cmd>
```




ver Command

Shows card information, uP FW and Atlas FW version.

Usage: ver

```
File Edit Setup Control Window KanjiCode Help
S/N : 4000211111111111
Company : Serial Cables
Model : ATLAS SLIMSAS HOST CARD
Version : 0.0.6 Date : Jul 27 2020 17:30:25
=====
Atlas Firmware Revision Information:-
=====
Active Firmware: Firmware Copy 1
Version : PCI4ARM-00.01.02.00 02/13/20
Platform: Broadcom Inc. - P411W-32P HBA
Cmd>
```

reset Command

Reset uP FW (not including Atlas FW)

Usage: reset

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