Atlas Host Internal Adapter Card

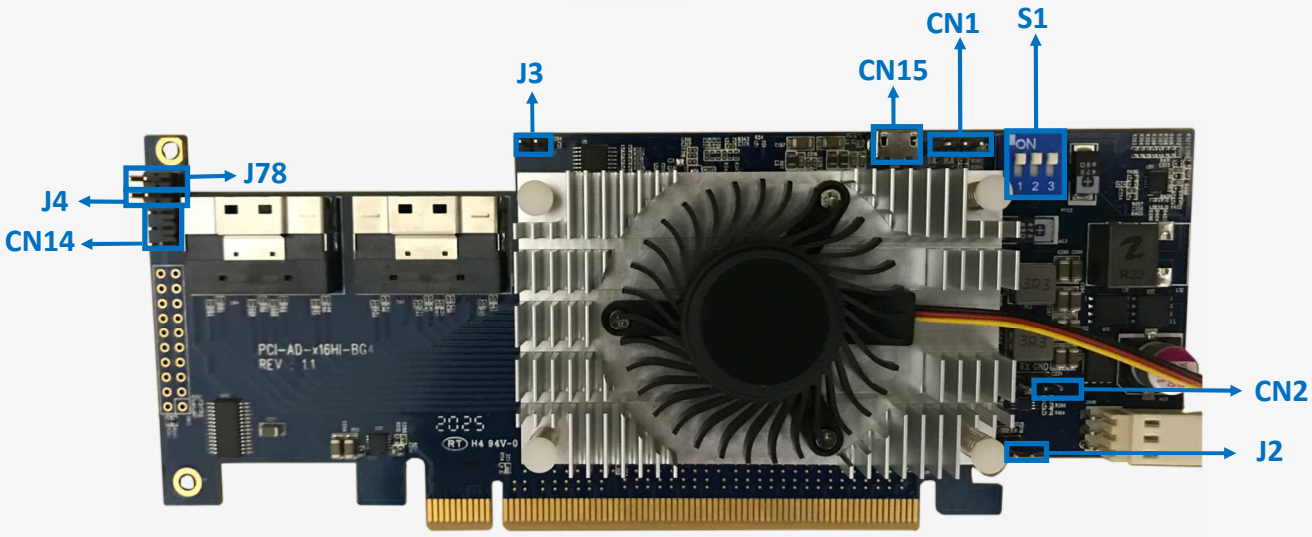
User's Manual

REV: 1.2

Oct. 2020

Atlas Internal Host Adapter Card

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)	

Atlas Internal Host Adapter Card

Function Description For LEDs

[In the Bottom side]

Location	Color	Description
LED7	Blue	**Atlas switch Heartbeat LED** Blinking: Indicates the Atlas switch working in Synthetic switch mode Solid ON: Indicates the Atlas switch working in base fanout switch mode
LED6	Red	**Atlas switch failure LED** Solid ON: indicates failure detected in Atlas switch
LED2/3/4/5	Red	**Port link matching LED** 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 SmilSAS 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

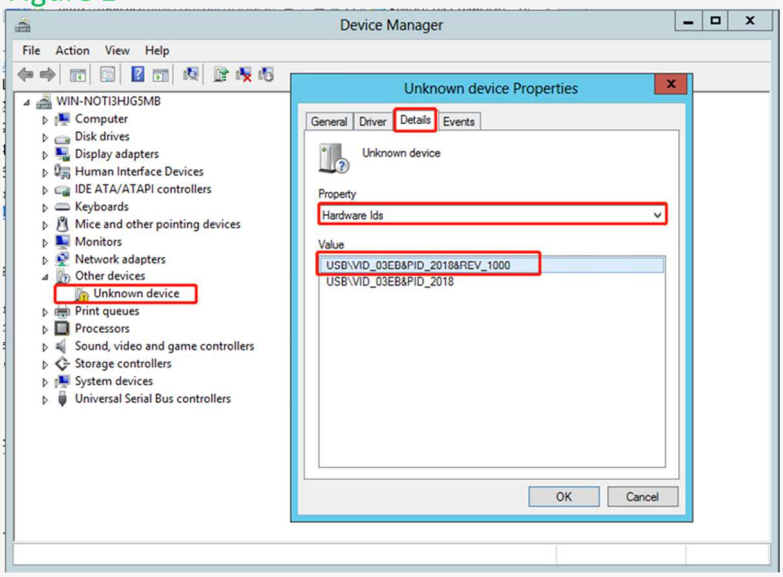


Figure 2

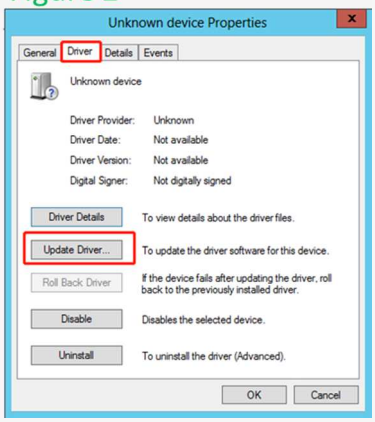


Figure 3

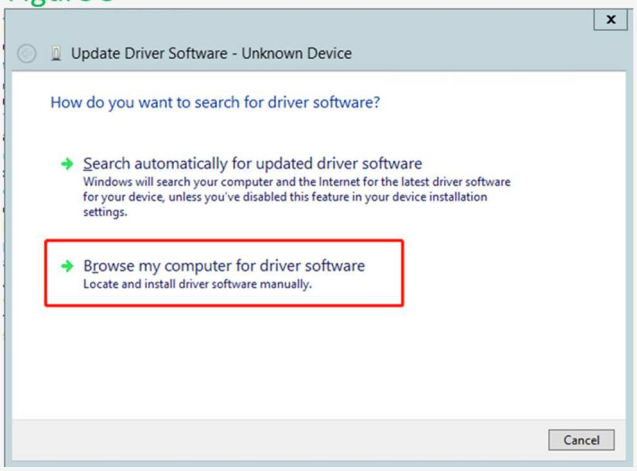
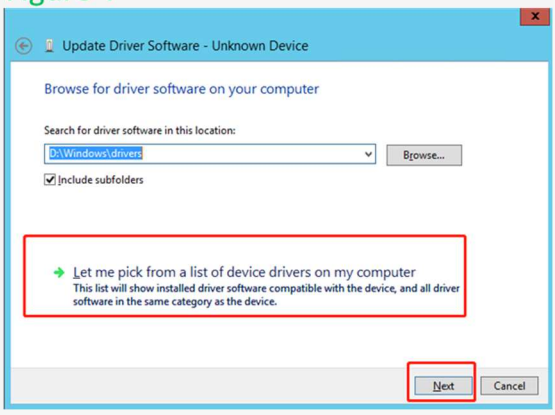


Figure 4



USB Driver Installation

Figure 5

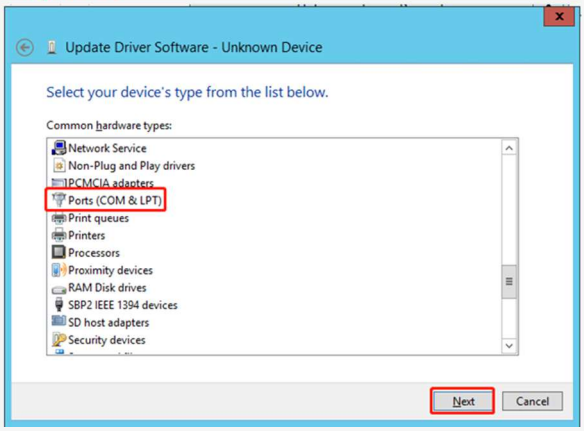


Figure 6

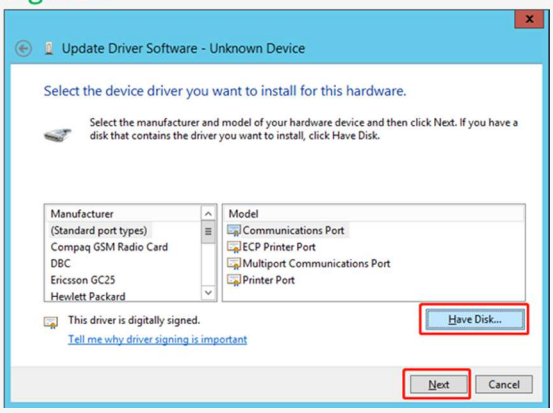


Figure 7

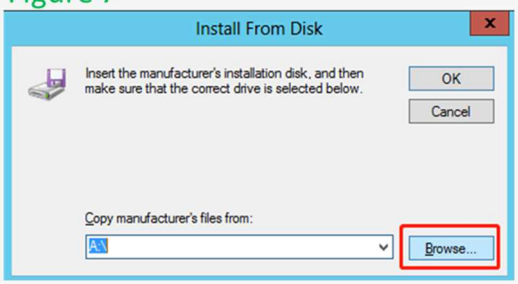


Figure 8

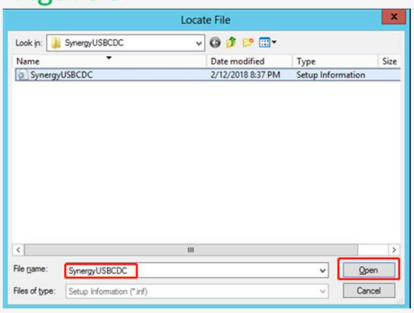


Figure 9

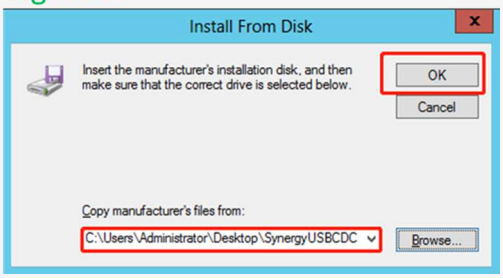


Figure 10

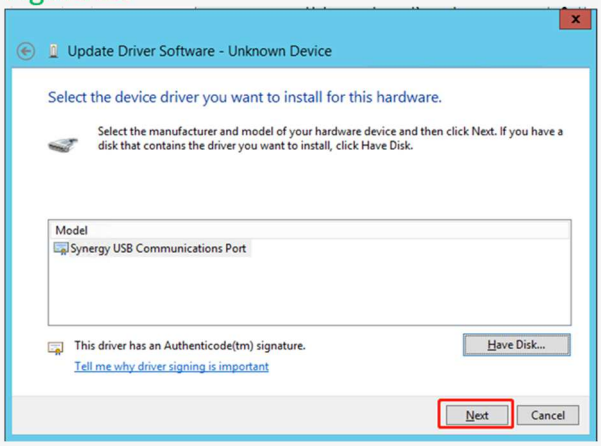


Figure 11

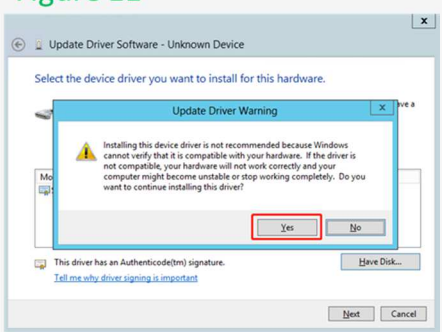


Figure 12

USB Driver Installation

Figure 13

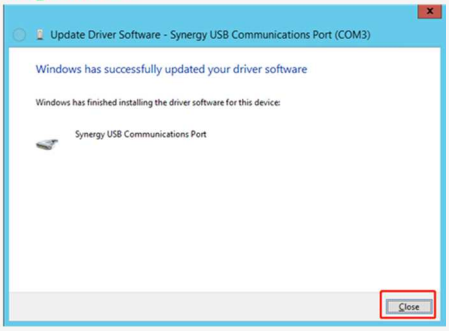


Figure 14

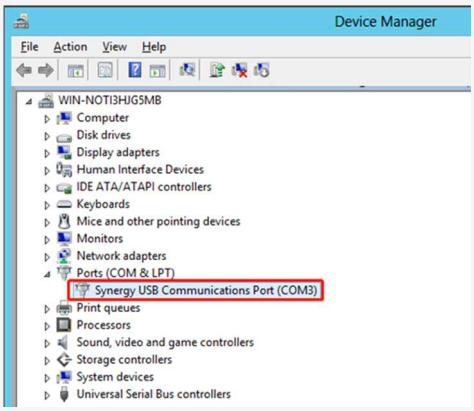
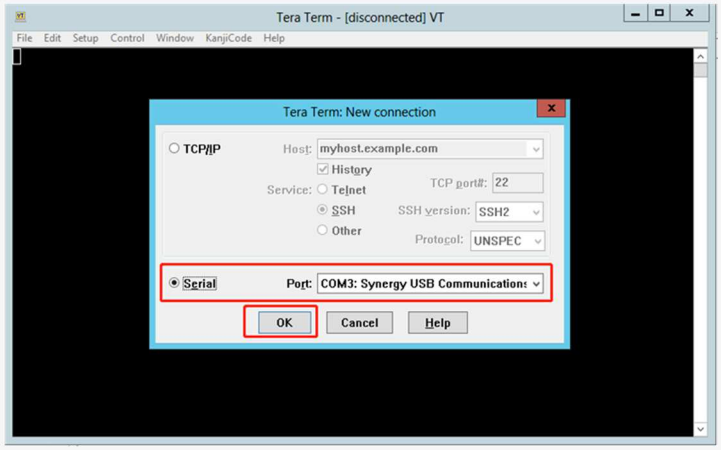
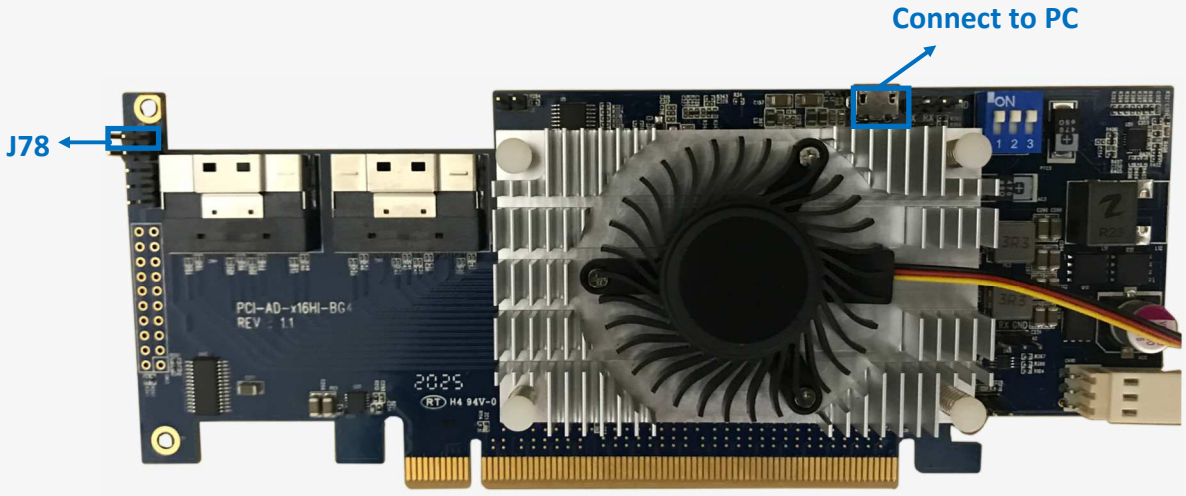


Figure 15



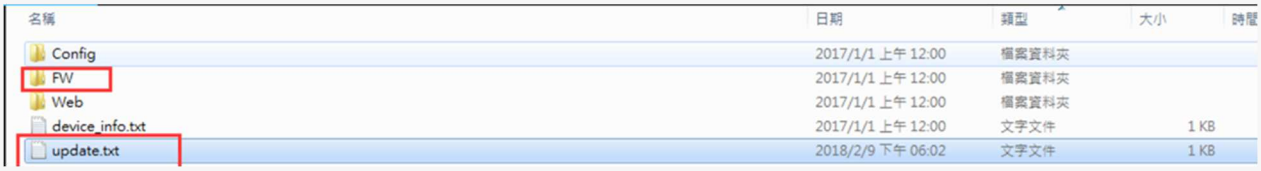
uP Synergy FW Upgrading

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.



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

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

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

    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
```

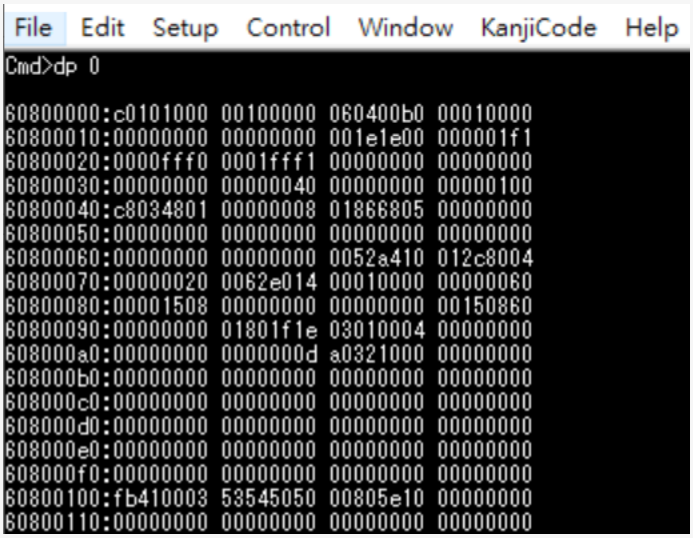
mw Command

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

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

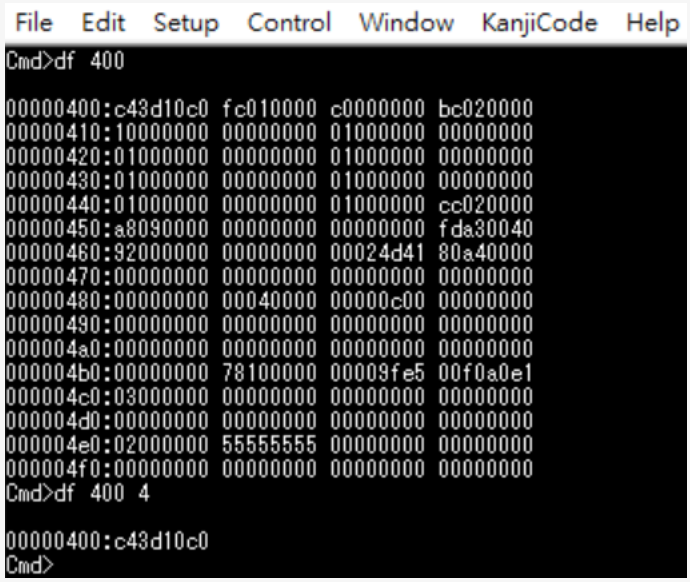
dp Command

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



df Command

Dump switch port-specific registers.
Usage: df address(H) [count(H)]
address(D) : address shoule be 0x00000000 ~ 0xFFFFFFFF
count(H) : count shoule be 0x00000000 ~ 0xFFFFFFFF



ssdrst Command

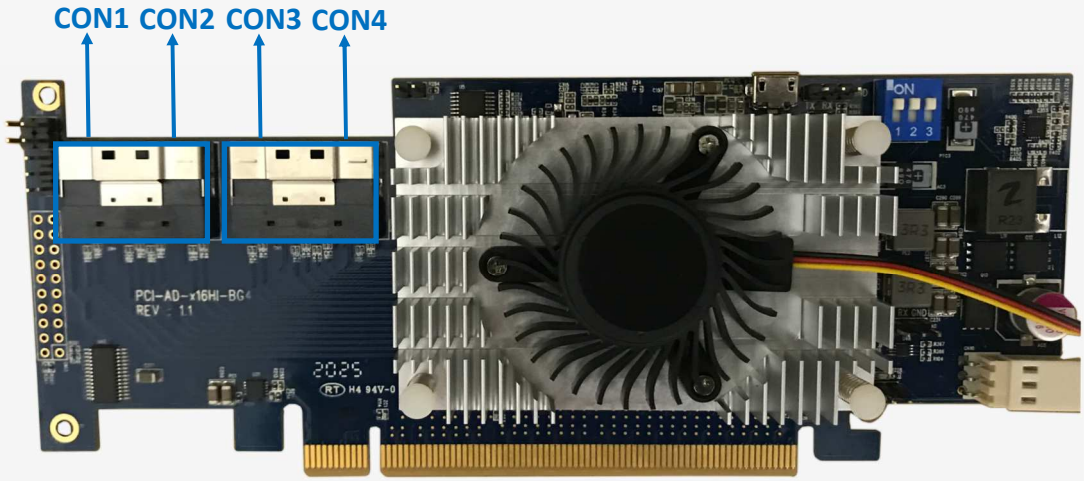
Issue PERST# from uP to device
-Usage: ssdrst <con(D)|all> [channel(C)]

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>
```

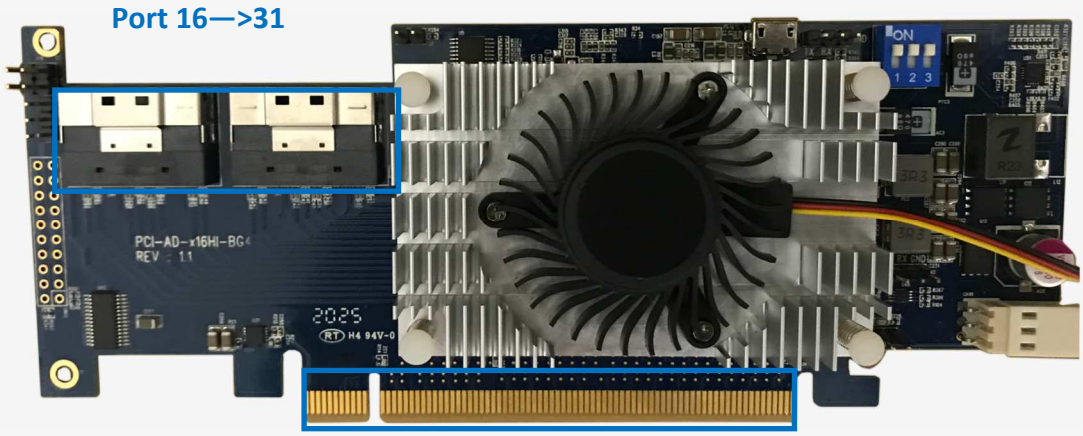
```
File  Edit  Setup  Control  Window  KanjiCode  Help
Cmd>ssdrst 1 a
Reset channel a of con 1 success
Cmd>
```

```
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
```

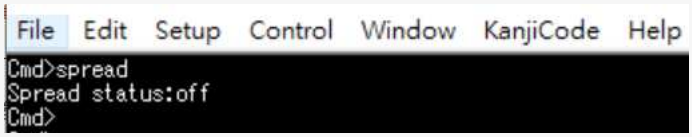
Atlas SlimSAS host card support DPR (Dynamic port reconfiguration) features.
The default setting is set all downstream ports to x1 ports.
If attached a x4 device in port 16, it will combine 16/17/18/19 ports to a one x4 port, and shows port information from 16 to 20, 21…and 31.

Scan Command

Scan all I2C devices in SlimSAS host card
Usage: scan

Spread Command

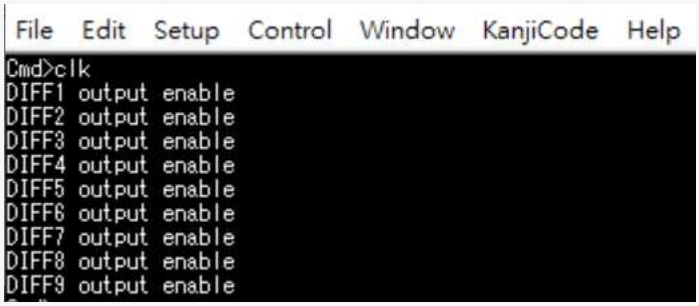
Show spread information or set Atlas switch working in -0.5% SSC frequency.
Usage: spread



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

clk Command

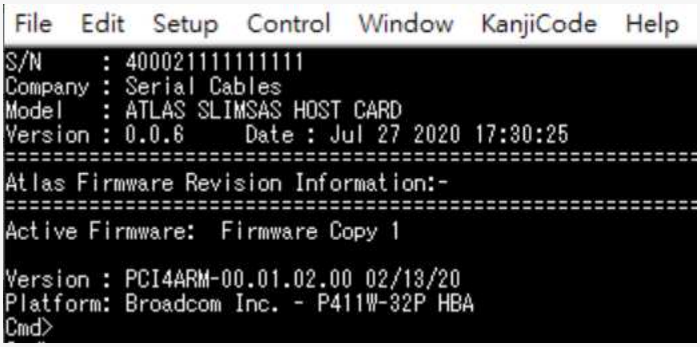
Show the clock output status or disable the clock output for all downstream ports.
Usage: clk



Usage: clk dis/en
Clock output disable/enable feature is dynamic changing, without card reset or power cycle.

ver Command

Shows card information, uP FW and Atlas FW version.
Usage: ver



reset Command

Reset uP FW (not including Atlas FW)
Usage: reset