Release Note for AIC SAS 6G 5U90server Expander
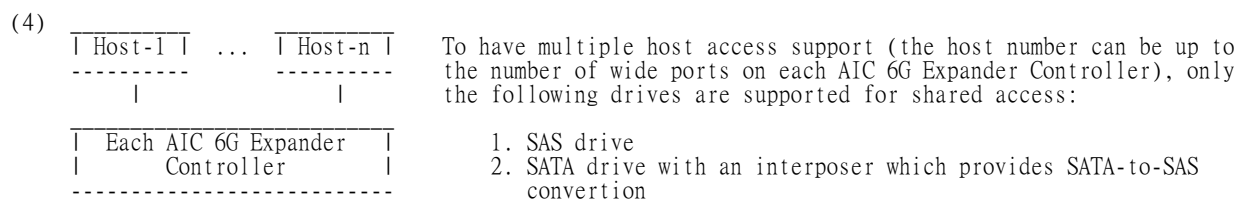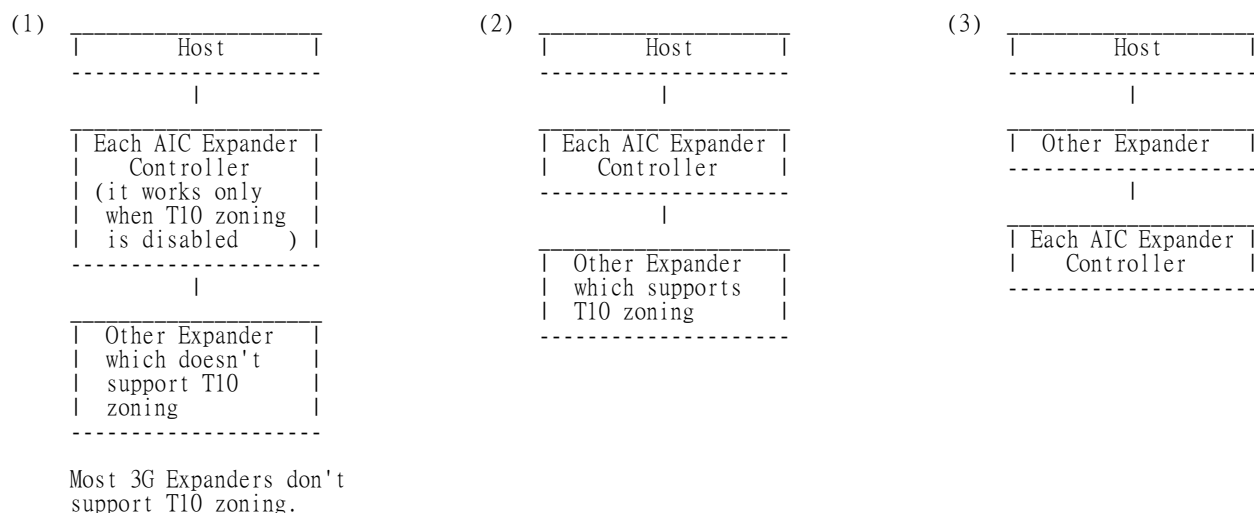
Mar 05, 2015

Changelog

03/05/2015 (firmware 1.11.18.1 + mfg 1.18.0.1 + firmware 1.11.14.3 + mfg 1.14.0.2) - Part Number
          (B98-005U90E0111801 + B98-005BC9G0180001 + B98-005U90E0111403 + B98-005JU6G0140002)
    1. Initial revision

Definition of the visual LED indicators (blue and red) associated with a disk drive

Host Control Bit	Blue LED	Red LED
OK	ON	OFF
RSVD DEVICE	ON	OFF
HOT SPARE	ON	OFF
CONS CHECK	ON	Fast blink
IN CRIT ARRAY	ON	Slow blink
IN FAILED ARRAY	ON	Slow blink
REBUILD/REMAP	ON	Fast blink
R/R ABORT	ON	Slow blink
ACTIVE	ON	OFF
DO NOT REMOVE	ON	OFF
MISSING	ON	ON
INSERT	ON	Slow blink
REMOVE	ON	Slow blink
IDENT	Slow blink	Slow blink
FAULT	ON	ON
DEVICE OFF	OFF	OFF

Supported Configuration

(1)
```
 _____
|       Host        |
 -------------------
         |
 _____
| Each AIC Expander |
|    Controller     |
| (it works only    |
|   when T10 zoning |
|   is disabled   ) |
 -------------------
         |
 _____
|   Other Expander  |
|   which doesn't   |
|   support T10     |
|   zoning          |
 -------------------
```
Most 3G Expanders don't
support T10 zoning.

(2)
```
 _____
|       Host        |
 -------------------
         |
 _____
| Each AIC Expander |
|    Controller     |
 -------------------
         |
 _____
|   Other Expander  |
|   which supports  |
|   T10 zoning      |
 -------------------
```

(3)
```
 _____
|       Host        |
 -------------------
         |
 _____
|   Other Expander  |
 -------------------
         |
 _____
| Each AIC Expander |
|    Controller     |
 -------------------
```

(4)
```
 _____     _____
| Host-1 | ... | Host-n |
 ---------     ---------
     |             |
 _____
|   Each AIC 6G Expander  |
|       Controller        |
 -------------------------
```
To have multiple host access support (the host number can be up to
the number of wide ports on each AIC 6G Expander Controller), only
the following drives are supported for shared access:

    1. SAS drive
    2. SATA drive with an interposer which provides SATA-to-SAS
       convertion

Unsupported Configuration

1. This only applies to the enclosure which supports dual AIC 6G Expander Controllers.
   The enclosure with dual AIC 6G Expander Controllers attached is inserted with a SATA drive without any
   interposer. It will cause the drive LEDs behaves incorrect.

Command Line Interface Operation

1. How to configure zone count
    Remove the SAS cable between the HBA/RAID card and the 5U90server before configuring zone count. Power
off the 5U90server after configuring zone count. Power on the 5U90server, then insert the SAS cable.

    Two zone configurations supported are one zone with 90 drives and two zones with 45 drives per zone.
The default configuration is one zone of which T10 zoning configuration is disabled. T10 zoning
configuration of the other configuration (two zones) is enabled.

    Each of seven COM ports (one COM port for Hub and six COM ports for Edge) should be applied with the
respective configuration.

    (A) Check the current zone configuration
        cmd> zonecount
        Zone count = 1

    (B) One-zone configuration supports one-up/one-down links. Each host can access up to 90 drives in this
        5U90server.
        cmd> zonecount 1
        cmd> reset

    (C) Two-zone configuration supports one-up link for the first zone and one-up link for the second zone.

        Each host can access up to 45 drives in this 5U90server.
        cmd> zonecount 2
        cmd> reset

2. How to get all revisions in AIC SAS 6G Expander
    (A) Expander firmware revision
        cmd> rev

    (B) Expander configuration revision
        cmd> showmfg

    (C) Micro controller firmware for managing sensors (Only the COM for Bridge supports this command)
        cmd> sensor

3. How to configure temperature sensor
    Four temperature settings in Celsius per sensor ID are T1, T2, warning threshold, and alarm (critical)
threshold. Only the COM for Bridge supports this command.

    (A) Get the current temperature settings (sensor ID = 2)
        cmd> temperature 2
        Temperature 2 in Celsius (t1=20 C, t2=55 C, warning=50 C, alarm=55 C)

    (B) Set temperature (sensor ID = 2) with new T1=18 C, T2=52 C, warning threshold=48 C, and alarm
        threshold=54 C. The new setting will take effect after reset.
        cmd> temperature 2 18 52 48 54
        cmd> reset

4. How to configure SAS standby timer
    This feature is applicable for SAS drives instead of SATA drives. SAS standby timer is in units of
minutes. Setting SAS standby timer with 0 minute disables this feature. The COM ports for Edge support
this command.

    (A) Get the current SAS standby timer
        cmd> sas_standby_timer
        SAS standby timer : 0 minutes

    (B) Set the SAS standby timer with 10 minutes. The new setting will take effect after reset.
        cmd> sas_standby_timer 10
        cmd> reset

5. How to configure enclosure address
    (A) Get the current enclosure address
        cmd> enclosure_addr
        Enclosure Address: 0x500605B0000272BF

    (B) Set the enclosure address with 0x500605B0000272BF. The new setting will take effect after reset.
        cmd> enclosure_addr 500605B0000272BF
        cmd> reset

6. How to turn on/off the power of a drive slot
    The "DEVICE OFF" for a drive slot is defined in the bit4, byte3 of the "Array Device Slot control element" in the SES-3 specification. Set the bit to turn off a slot power, and vice versa. Please install a software package "sg_utils" on your host computer, and have a SAS HBA and a cable to connect your host with the 5U90server. We use Linux for example.

    (A) Show the device for AIC Expander Controller (canister)
        $ sg_map -i

        /dev/sg61   AIC CORP   5U90swap: Edge   0b0e

    (B) Get the current state of a slot power (Only Edge should be applied). In this example the "Device off=0" means the slot power is on.
        $ sg_ses --page=2 /dev/sg61

        Element 0 descriptor:
          App client bypass B=0, Fault sensed=0, Fault reqstd=0, Device off=0

    (C) Get the descriptor of a slot power (Only Edge should be applied)
        $ sg_ses --page=7 /dev/sg61

        Element 0 descriptor: Disk001

    (D) Turn off a slot power (Only Edge should be applied)
        $ sg_ses --descriptor=Disk001 --set=3:4:1 /dev/sg61

    (E) Turn on a slot power (Only Edge should be applied)
        $ sg_ses --descriptor=Disk001 --clear=3:4:1 /dev/sg61

7. How to configure serial number
    (A) Get the current serial number
        cmd> serial_number
        Expander number: 421-12021704510010
        or
        Expander number: 421-12021704510010   Enclosure number: 526-12071100500088

    (B) Only set Expander serial number with 421-12021704510010.
        cmd> serial_number 421-12021704510010

    (C) Set both of Expander serial number (421-12021704510010) and Enclosure serial number (526-12071100500088).
        cmd> serial_number 421-12021704510010 526-12071100500088