Release Note for AIC SAS 6G 4U60 Hub Expander

Nov 14, 2013
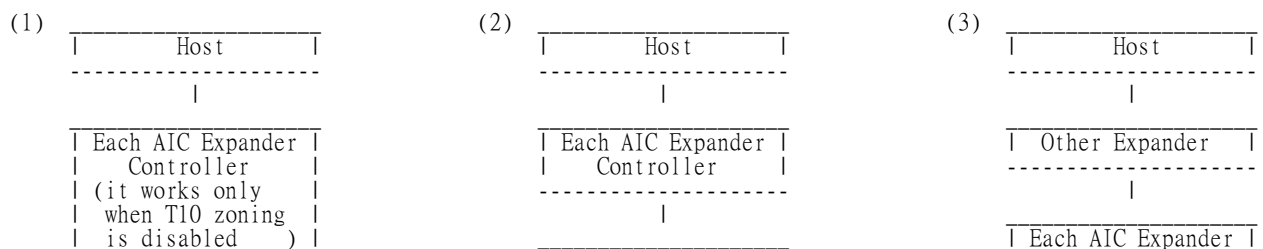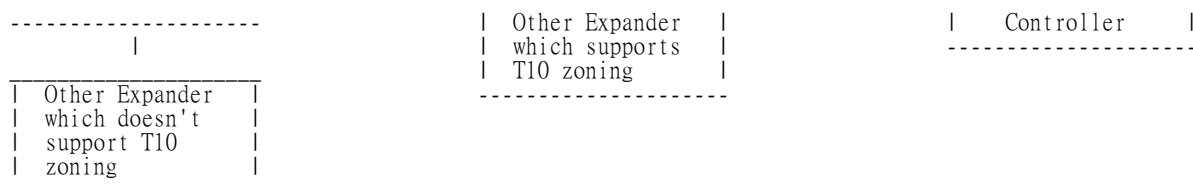

Changelog

11/14/2013 (firmware 1.11.2.5 + mfg 1.2.0.3) - Part Number (B98-004U60E2110205 + B98-004JS6G2020003)
        Old Part Number B98-004U60E2110204 is replaced by B98-004U60E2110205.
    1. Add the console command "serial_number" to configure Expander serial number and Enclosure serial
       number.
    2. Add the console command "enclosure_addr" to configure the enclosure address.

02/26/2013 (firmware 1.11.2.4 + mfg 1.2.0.3) - Part Number (B98-004U60E2110204 + B98-004JS6G2020003)
        Old Part Number B98-004U60E2110203 is replaced by B98-004U60E2110204.
    1. Resolve the compatibility issue when zone count is 2 or 4

10/25/2012 (firmware 1.11.2.3 + mfg 1.2.0.3) - Part Number (B98-004U60E2110203 + B98-004JS6G2020003)
        Old Part Number B98-004U60E2110202 is replaced by B98-004U60E2110203.
        Old Part Number B98-004JS6E2020002 is replaced by B98-004JS6G2020003.
    1. Resolve the fan speed level issue

04/24/2012 (firmware 1.11.2.2 + mfg 1.2.0.2 + firmware 1.11.3.2 + mfg 1.3.0.2 + mfg 1.3.1.2)
    1. Remove the section "Supported Topology", and add two sections, "Supported Configuration" and
       "Unsupported Configuration"

03/12/2012 (firmware 1.11.2.2 + mfg 1.2.0.2 + firmware 1.11.3.2 + mfg 1.3.0.2 + mfg 1.3.1.2)
    1. Add the enclosure identity

03/09/2012 (firmware 1.11.2.1 + mfg 1.2.0.2 + firmware 1.11.3.2 + mfg 1.3.0.2 + mfg 1.3.1.2)
    1. Improve signal for SATA drive

02/15/2012 (firmware 1.11.2.1 + mfg 1.2.0.1 + firmware 1.11.3.1 + mfg 1.3.0.1 + mfg 1.3.1.1)
    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 | OFF |
| FAULT | ON | ON |
| DEVICE OFF | ON | OFF |




Supported Configuration

```
(1) _____       (2) _____       (3) _____
    |      Host        |           |      Host        |           |      Host        |
    --------------------           --------------------           --------------------
            |                              |                              |
     _____          _____           _____
    | Each AIC Expander |          | Each AIC Expander |          |  Other Expander   |
    |     Controller    |          |     Controller    |          --------------------
    | (it works only    |          --------------------                   |
    |   when T10 zoning  |                  |                      _____
    |  is disabled    ) |          _____          | Each AIC Expander |
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---------------------                    |  Other Expander   |         |   Controller     |
         |                               |  which supports   |         --------------------
_____                    |  T10 zoning       |
|  Other Expander   |                     --------------------
|  which doesn't    |
|  support T10      |
|  zoning           |
---------------------

Most 3G Expanders don't
support T10 zoning.


(4)   _____     _____
      | Host-1 |  ... | Host-n |      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:
      _____
      |  Each AIC 6G Expander     |     1. SAS drive
      |       Controller          |     2. SATA drive with an interposer which provides SATA-to-SAS
      -----------------------------        convertion
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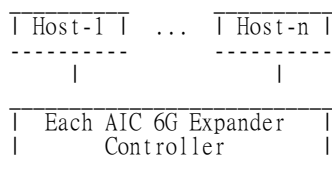
Unsupported Configuration

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 4U60 before configuring zone count. Power off
   the 4U60 after configuring zone count. Power on the 4U60, then insert the SAS cable.

     Three zone configurations supported are one zone with 60 drives, two zones with 30 drives per zone, and
    four zones with 15 drives per zone. The default configuration is one zone of which T10 zoning
   configuration is disabled. T10 zoning configuration of the other configurations (two zones and four zones)
   is enabled.

     Each of three COM ports (COM for Hub, COM for Left Edge, and COM for Right Edge) should be applied with
   the same zone configuration.

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

        (B) One-zone configuration to support one host and up to three down links. The host can access up to
            60 drives in this 4U60.
            cmd> zonecount 1
            cmd> reset

        (C) Two-zone configuration to support two hosts and up to one down link per host. Each host can access
            up to 30 drives in this 4U60.
            cmd> zonecount 2
            cmd> reset

        (D) Four-zone configuration to support four hosts. Each host can access up to 15 drives in this 4U60.
            cmd> zonecount 4
            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) Microchip firmware for managing sensors (Only the COM for Hub supports this command)
            cmd> sensor

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

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

    (B) Set temperature 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 18 52 48 54
        cmd> reset

4. How to identify the enclosure
    The LED on the power button is used for the enclosure identity. The "RQST IDENT" for Enclosure is
defined in the byte1 and bit7 of the "Enclosure control element" in the SES-3 specification. 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 expander. We use Linux for example.

    (A) Show the device for the enclosure
        $ sg_map -i

        /dev/sg60    AIC CORP    4U60: Hub    0b02
        /dev/sg64    AIC CORP    4U60: Left Edge    0b03
        /dev/sg65    AIC CORP    4U60: Right Edge    0b03

    (B) Enable the enclosure identity (Only Hub should be applied)
        $ sg_ses --descriptor=EnclosureElement01 --set=1:7:1 /dev/sg60

    (C) Disable the enclosure identity (Only Hub should be applied)
        $ sg_ses --descriptor=EnclosureElement01 --clear=1:7:1 /dev/sg60


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 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