Release Note for AIC SAS 6G 4U24E0B-2 Expander

Dec 24, 2013

Changelog

12/24/2013 (firmware 1.11.1.4 + mfg 1.1.0.3) - Part Number (B98-00XUXXE0110104 + B98-004TK4G0010003)
Old Part Number B98-00XUXXE0110103 is replaced by B98-00XUXXE0110104.

1. Add the console command "enclosure_addr" to configure the enclosure address.
2. Add the console command "sas_standby_timer" to configure the SAS standby timer.
3. Add the console command "check_wide_port" to configure the wide port checker.
4. Add the console command "serial_number" to configure Expander serial number and Enclosure serial number.
5. Resolve the issue below.
   Each of the subtractive phys attached to the controller appear to be attached to a different SAS addresses. This is a transient condition for Auto Port Configuration enabled controller ports when each phy gets configured as a separate port. More than one ports with subtractive routing attributes are not allowed as per SAS spec. The discovery algorithm checks for multiple expanders attached to subtractive phys to detect an invalid topology. This check was not excluding phys without any devices attached. Due to this linked down controller phys with different SAS addresses, wrongly get considered as multiple subtractive ports. Once the discovery algorithm detects multiple subtractive ports on an expander, it skips that expander during discovery leading to incomplete route table.

07/04/2013 (firmware 1.11.1.3 + mfg 1.1.0.3) - Part Number (B98-00XUXXE0110103 + B98-004TK4G0010003)
Old Part Number B98-00XUXXE0110101 is replaced by B98-00XUXXE0110103.
Old Part Number B98-004TK4E0010002 is replaced by B98-004TK4G0010003.

1. Resolve the issue that the temperature settings in MFG can not be updated into MCU for smart fan control while powering up both of Expander and MCU.
2. Change the text descriptor for Array Device from "ArrayDeviceYY" to "DiskZZZ" where YY is the slot ID in hexadecimal form and ZZZ is the slot ID in decimal form.
3. Improve signal

05/11/2012 (firmware 1.11.1.1 + mfg 1.1.x.2)

1. Add the item 6 of the notice 02/15/2012 in the "Changelog" section

04/24/2012 (firmware 1.11.1.1 + mfg 1.1.x.2)

1. Remove the section "Supported Topology", and add two sections, "Supported Configuration" and "Unsupported Configuration"

03/06/2012 (firmware 1.11.1.1 + mfg 1.1.x.2)

1. Improve signal for SATA drive

02/15/2012 (firmware 1.11.1.1 + mfg 1.1.x.1)

1. Both LEDs (blue and red) per drive can be controlled by Host HBA or RAID card.
2. Compatible with Adaptec 3G HBA and RAID cards.
3. Support T10 zoning.
4. In dual-Expander configuration, Host can control drive's LEDs (blue and red) via either Expander.
5. The firmware on Expander automatically configures the number of Fans (cooling elements) during the first boot after the Expander board is attached to the backplane, but the number of cooling elements in SES report may be incorrect on the first boot. After the second boot, cooling elements work well.
6. The order of drive slot id is changed. The order in firmware 0.6.x.x is from top to bottom, then from left to right, and the first slot id (the top-left drive) in SES page is 0. The order in firmware 1.11.1.1 is from left to right, then from top to bottom, and the first slot id (the top-left drive) in SES page is 1.

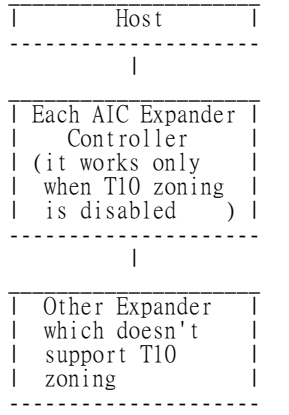
Definition of the visual LED indicators (blue and red) associated with a disk drive

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

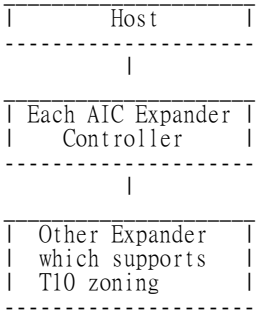
Supported Configuration

(1)

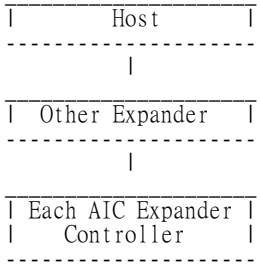


Most 3G Expanders don't support T10 zoning.

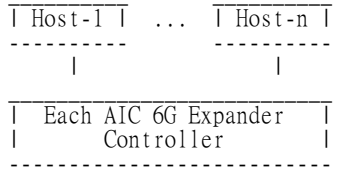
(2)



(3)



(4)



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 enable/disable T10 zoning
   The default T10 zoning configuration is off.
   (A) Check the current zoning state
       cmd> phyzone state
       Zoning is OFF

   (B) Enable zoning
       cmd> phyzone on

   (C) Disable zoning
       cmd> phyzone off

2. How to configure T10 zoning
   After enabling T10 zoning, three predefined groups are Group1, Group8, and Group9. Each PHY should be in one of the three group, and all PHYs in a wide port should be in the same group. Each PHY in Group1 can access any PHY in other groups, and vice versa. Each PHY in Group8 cannot access any PHY in Group9, and

vice versa.

The default configuration, which allows two wide ports can access all drives, follows.
(A) PHY0 - PHY3 for the UP wide port (the first port) : Group8
(B) PHY4 - PHY7 for the UP/DOWN wide port (the second port) : Group1
(C) PHY8 - PHY11 for the third port if available : Group1
(D) PHY12 - PHY35 for drive : Group1

The command syntax is "phyzone phy_index group". The following example shows how to setup one drive accessed only the first port and another drive accessed only by the second port.

Step 1: Read the current group for PHY4
```
cmd> phyzone 4
Phy 4 for Zone Group 1
```

Step 2: Assign the second port (PHY4 - PHY7) for Group9
```
cmd> phyzone 4 9
cmd> phyzone 5 9
cmd> phyzone 6 9
cmd> phyzone 7 9
```

Step 3: Assign the drive on PHY12 to be accessed only by the first port instead of the second port
```
cmd> phyzone 12 8
```

Step 4: Assign the drive on PHY13 to be accessed only by the second port instead of the first port
```
cmd> phyzone 13 9
```

Step 5: Reset

3. 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
```
cmd> sensor
```

4. How to configure temperature sensor

Four temperature settings in Celsius are T1, T2, warning threshold, and alarm (critical) threshold.

(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
```

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 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.

(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
```

7. How to configure wide port checker

This feature is applicable for SAS drives instead of SATA drives. If there is no connection with any active SAS initiator by checking all wide ports, AIC Expander Controller stops all attached SAS drives to save power consumption of SAS drives. Otherwise, AIC Expander Controller starts all attached SAS drives to provide drive access service to any active SAS initiator.

(A) Get the current state of wide port checker

```
cmd> check_wide_port
Checking wide port is OFF
```

(B) Enable checking wide port. The new setting will take effect after reset.

```
cmd> check_wide_port on
cmd> reset
```

(C) Disable checking wide port. The new setting will take effect after reset.

```
cmd> check_wide_port off
cmd> reset
```

8. 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
```