

GIGABYTE

Software Reference Guide for MP30 (APM) Platform R01

Document Version: R01

CONTENTS

BASICS SECTION	3
1.1 Equipment and tools list.....	3
1.2 How to make Ubuntu OS image to SD card	5
1.3 How to Power on the system	6
1.4 How to get BMC DHCP IP address via debug console	10
1.5 How to entry uBoot shell environment.....	13
1.6 How to booting in OpenLinux (Built-in).....	14
1.7 How to connect to Web console of BMC	15
1.8 How to confirm uBoot/BMC firmware version.....	17
1.9 How to issue a IPMI command under Openlinux (Build in).....	19
1.10 How to confirm add-in card devices	20
1.11 How to get sensor information.....	23
1.12 About System event log	26
1.13 How to enabled vKVM function.....	27
1.14 Booting into Ubuntu OS with SD card	29
ADVANCE SECTION	30
2.1 How to update onboard firmware	30
2.2 How to use Gigabyte utility to scan IP address of Management LAN	36
2.3 How to process the OS booting under uBoot shell environment.....	37
2.4 How to input LAN MAC address to onboard LAN controller.	38
2.5 How to restore LAN MAC address to onboard LAN controller.....	39
2.6 How to install IPMI package under Ubuntu OS	40
2.7 How to recovery U-Boot via SD card.....	42
2.8 How to use Easy BIOS to update onboard firmware	45
2.9 How to set-up Tftp Server.....	48
APPENDIX1 Add-in card support list.....	50

BASICS SECTION

1.1 Equipment and tools list

Follow the instruction to prepare Equipment and tools list:

1. Environment:
 - I. Mother board: MP30-AR0-00 version 1.1
 - II. Bsp firmware version: 2.4 (build 01.16.00.00. 2015/06/11)
 - III. uBoot firmware version: 1.16.00-F06a (uart0)
 - IV. BMC firmware version: 3.18 (SSIF not ready)
 - V. Ubuntu OS image version: 14.04 LTS (GNU/Linux 3.12.0 aarch64)
2. Null Modem cable (Gigabyte Part No. 25CF8-03K520-L5R)



3. USB to Serial adapter (\$419 NTD)

<http://24h.pchome.com.tw/prod/DCAX06-A80421348?q=/S/DCAX8T>

Uptech

使用**FTDI**晶片相容性佳
UTN411 USB to RS-232訊號

- FTDI晶片
- 1-Port RS-232
- 1 Mbps傳送率
- 110cm線長
- 支援Windows/ MAC/ Linux
- 支援熱插拔裝置及雙向傳輸
- 通過FCC、CE認證，符合ROHS規範

建議售價 \$699

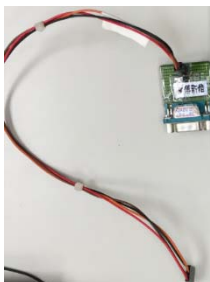
3期0利率 31天 12期分期 13天

網路價 **\$419**

VISA 信用卡 ATM 貨到付款 ibon 經銷

信用卡分期付款 全家銀行

4. Debug console tooling (Gigabyte Part No.CGK-8B0031-01-539)



5. Putty Application (Free)

<http://www.windows8downloads.com/win8-putty.html>

PuTTY Portable

portable telnet and SSH **PuTTY** Portable is the popular **PuTTY** telnet and SSH client packaged as a portable ... leaving any personal information behind. Features: **PuTTY** is a lightweight telnet and SSH client for ...

Price: FREE / Open Source

[PuTTY Portable](#) [USB flash drive](#) [iPod](#)

EDITOR'S PICK

[Details](#) [Download](#) [Save](#)

6. Win32DiskImager v0.95 (Free)

<http://sourceforge.net/projects/win32diskimager/>



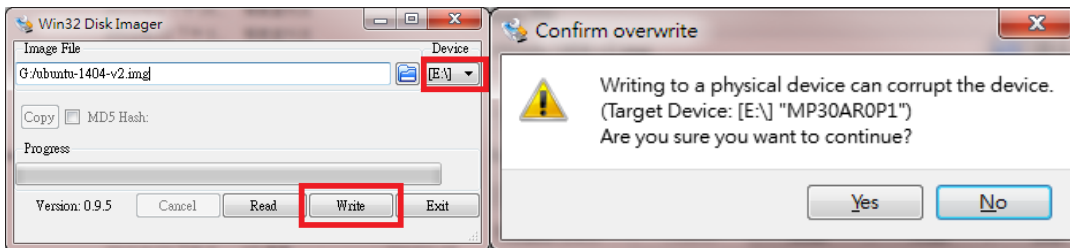
7. 7-Zip (Free)
8. Gigabyte Utility http://download.gigabyte.us/FileList/Utility/server_system_utility_command_line_utility_0.2x.zip
9. Tftp Application (Free) http://download.cnet.com/Tftpd32-64-bit/3000-2085_4-75446930.html
10. Storage for OS recovery (SD card/USB memory stick/SATA hard disk)



1.2 How to make Ubuntu OS image to SD card

Follow the instruction below for Power on the system:

1. Prepare Target storage (SD card/USB memory stick/SATA hard disk) the capacity need big than 4 Giga-bytes
2. Download the OS image (ubuntu-1404-v2.img.xz) from Gigabyte website:
MP30-AR0: <http://download.gigabyte.us/FileList/Firmware/ubuntu-1404-v2.img.xz.zip>
R120-P30: http://download.gigabyte.us/FileList/Firmware/sys_ubuntu-1404-v2.img.xz.zip
3. Use 7-Zip to unzip the OS image then ubuntu-1404-v2.img will be created (The File Size around 984 MB).
4. Use Quick format to empty and unlock the Target storage (SD card or USB memory stick)
5. Run the Win32 Disk Imager application and mark sure the Target Device is correct (SD card or USB memory stick).
6. Load the OS image then click the "Write" Button.
7. Then click the "Yes" when Confirm overwrite Box appear.



8. Ejection the Target storage after finish the OS image recovery.

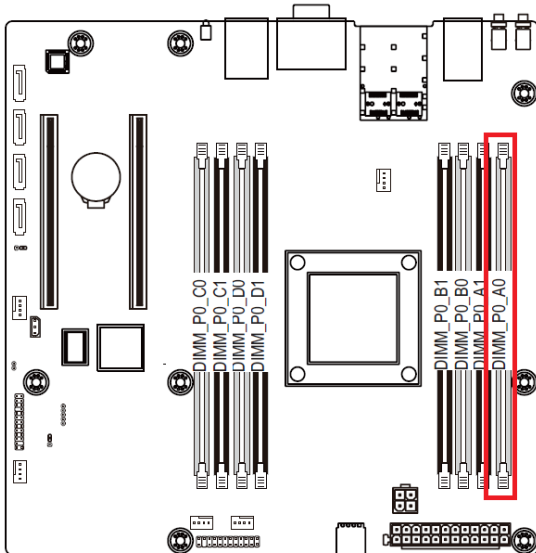
1.3 How to Power on the system

Follow the instruction below for Power on the system:

1. Installing the DDR3 Memory



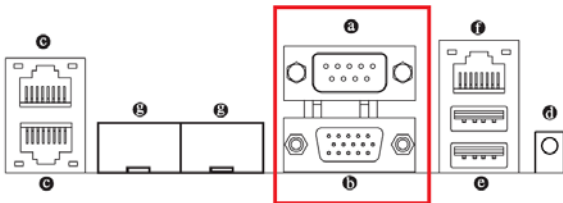
When only one DIMM is used, it must be populated in memory slot0 first.
Memory populated sequence must be followed with slot0/slot1.
System will not boot normally with incorrect populated sequence.



2. Connection for the message display

There are two kinds of interface, one is Video Port the other one is Serial Port.

Back Panel Connectors



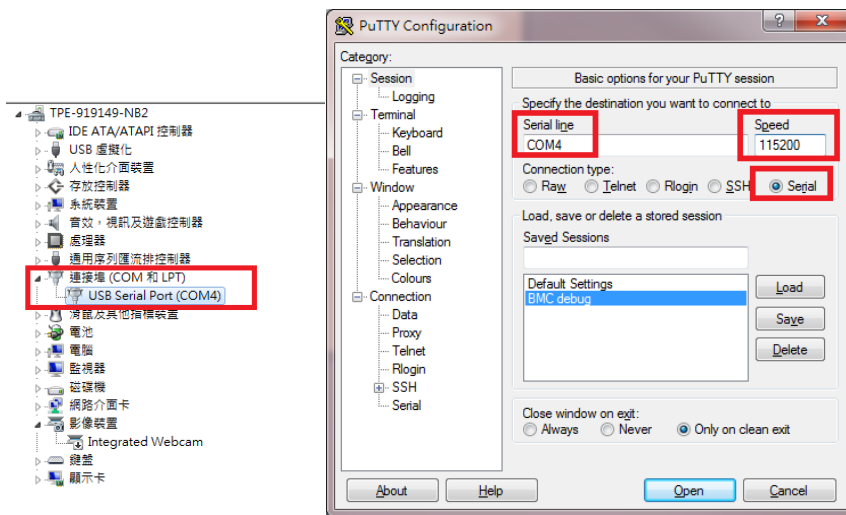
a Serial Port

Connects to serial-based mouse or data processing devices.

b Video Port

The video in port allows connect to video in, which can also apply to video loop thru function.

- I. Connects to Video Port (D-Sub Type VGA Connector)
- II. Connects to Serial Port (Need USB to serial and Null-Modem cable with Putty Application)
 - A. Open Putty Application
 - B. Setting “Serial Line” and “Speed” (You can confirm with Device Manager to get Serial Line information if you use USB to Serial adapter)
 - C. The Baud rate speed needs setting as 115200 bps.
 - D. Click the Open button to run the Putty application.

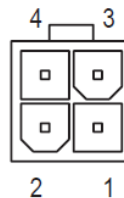
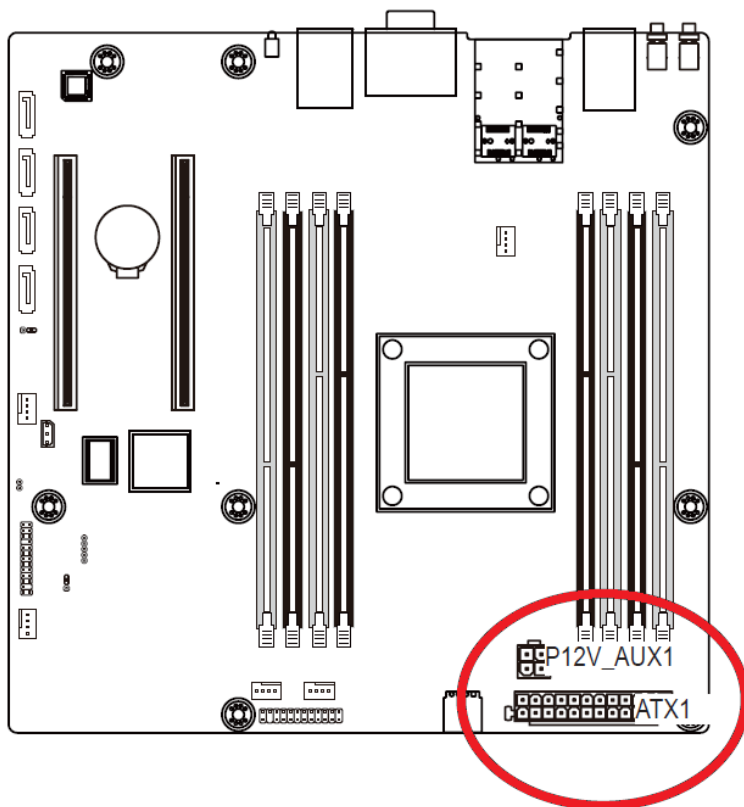


3. Installing the power cable of Power supply to ATX1/P12V_AUX1 connector of Mother Board.



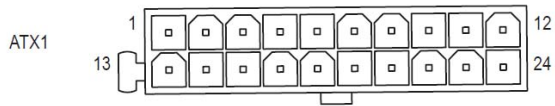
- To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (500W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.

ATX1/P12V_AUX1 (2x4 12V Power Connector and 2x12 Main Power Connector)



P12V_AUX1

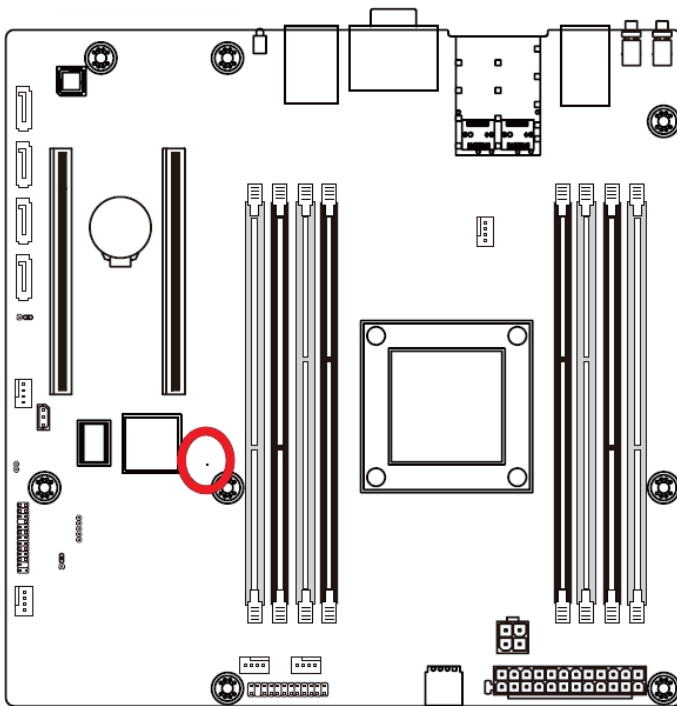
Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V



Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	-5V
9	5VSB (stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	3.3V	24	GND

4. Waiting for BMC firmware ready until LED_BMC LED become to blink.

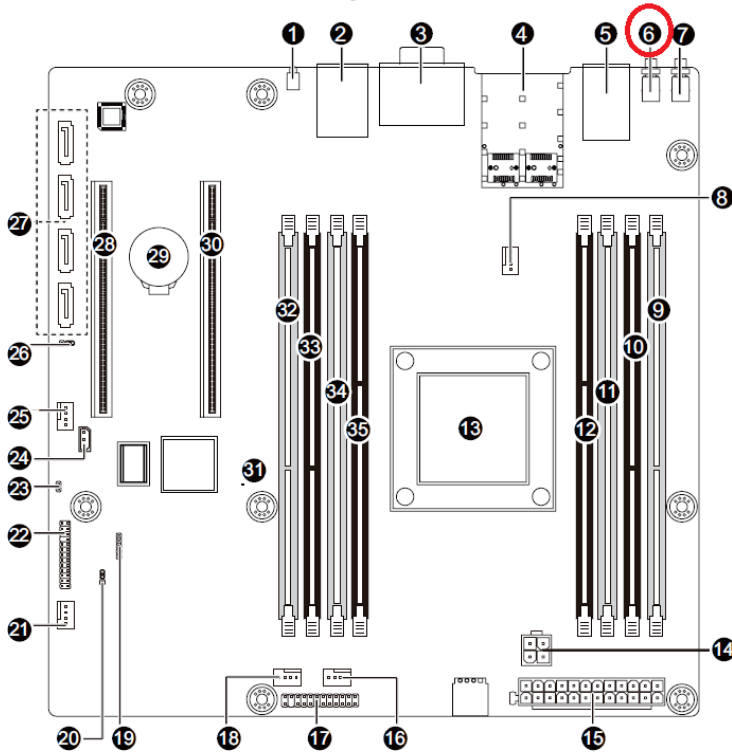
LED_BMC (BMC Firmware Readiness LED)



State	Description
On	BMC firmware is initial
Blinking	BMC firmware is ready
Off	AC loss

5. Push the Power Switch (SW_PWR) to power on the system.

MP30-AR0 Motherboard Layout



Item	Code	Description
1	LED_STA	System status LED
2	USB2_MLAN	BMC Management LAN port (top)/USB 2.0 ports (bottom)
3	VGA1_COM1	Serial port (top)/VGA port (bottom)
4	SFP+_1_2	10G Fiber LAN ports
5	LAN1_2	LAN ports
6	SW_PWR	Power button/LED
7	SW_ID	ID switch button/LED
8	CPU_FAN	CPU fan connector
9	DIMM_PO_A0	Channel 1 slot 0
10	DIMM_PO_A1	Channel 1 slot 1
11	DIMM_PO_B0	Channel 2 slot 0
12	DIMM_PO_B1	Channel 2 slot 1
13	CPU0	ARM CPU
14	P12V_AUX1	4 pin power connector
15	ATX1	24 pin main power connector
16	SYS_FAN1	System fan connector#1
17	FP_1	Front panel header (for Server system)
18	SYS_FAN2	System fan connector#2
19	PMBUS	PMBus header
20	CLR_CMOS	Clear CMOS jumper
21	SYS_FAN3	System fan connector#3
22	BP_1	HDD back plane board header
23	CASE_OPEN	Case open intrusion alert header
24	IPMB	IPMB connector
25	SYS_FAN4	System fan connector#4
26	SATA_DOM0	SATA port 3 DOM support jumper
27	SATA0/1/2/3	SATA3 6Gb/s connectors
28	PCIE_2	PCI Express x16 slot
29	BAT	Battery socket
30	PCIE_1	PCI Express x16 slot
31	LED_BMC	BMC firmware readiness LED
32	DIMM_PO_C0	Channel 3 slot 0
33	DIMM_PO_C1	Channel 3 slot 1
34	DIMM_PO_D0	Channel 4 slot 0
35	DIMM_PO_D1	Channel 4 slot 1

6. Wait for Booting message as below.

```
COM4 - PuTTY
U-Boot 2013.04 (Jun 02 2015 - 10:54:10)      REV: 1.15.01-F05 (uart0)

CPU0: RPM ARM 64-bit Potenza Rev B0 2400MHz FCP 2400MHz
      32 KB ICACHE, 32 KB DCACHE
      SOC 2000MHz IOBAXI 400MHz AXI 250MHz AHB 200MHz GFC 125MHz
Boot from SPI-NOR
Slimpro FW:
  Ver: 2.4 (build 01.15.01.00 2015/05/22)
  TPC: disabled
  AVS: supported (margin: -0mV)
  RSP: supported
  PWROFF: supported
Board: GIGABYTE MP30AR0 - AppliedMicro APM883400-xNA24SPT Customer Board
I2C: ready

DRAM: ECC 4 GiB @ 1066MHz
SF: Detected MX25L25635F with page size 64 KiB, total 32 MiB
```

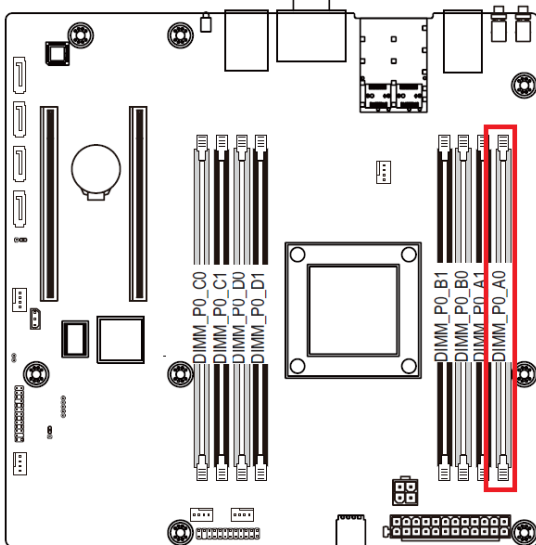
1.4 How to get BMC DHCP IP address via debug console

Follow the instruction below for get DHCP IP of Management Lan via debug console:

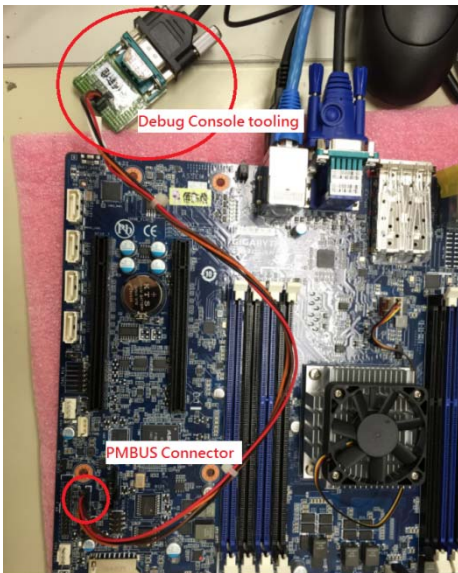
1. Installing the DDR3 Memory



When only one DIMM is used, it must be populated in memory slot0 first.
Memory populated sequence must be followed with slot0/slot1.
System will not boot normally with incorrect populated sequence.



2. Connects to the JTAG_BMC with debug console tooling (debug console PIN define are 1:Vcc/2:Rx/3:Tx/4:GND)

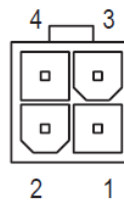
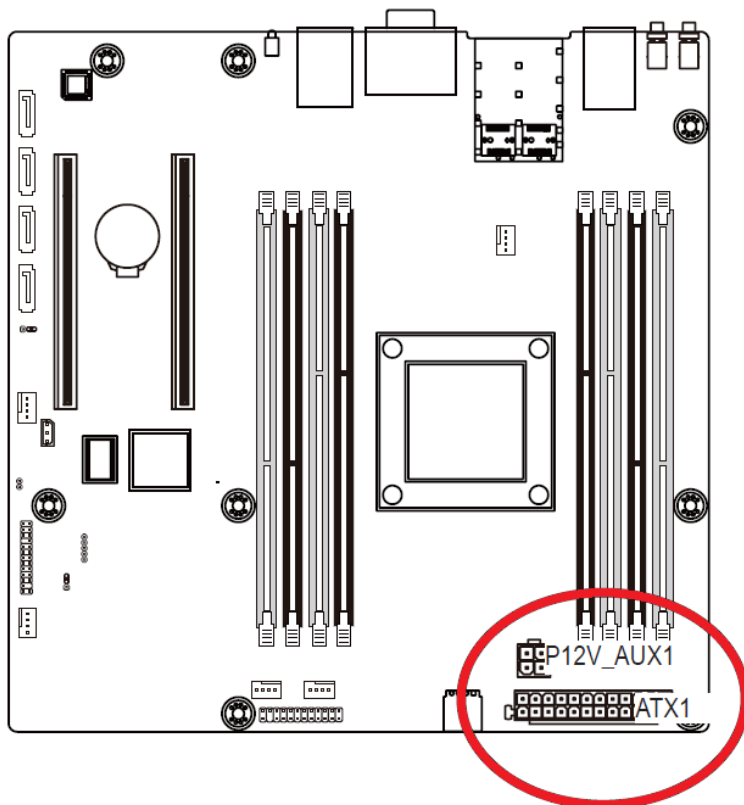


3. Installing the power cable of Power supply to ATX1/P12V_AUX1 connector of Mother Board.



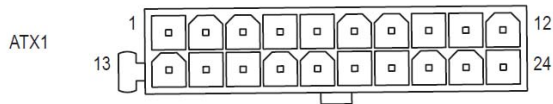
- To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (500W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system.

ATX1/P12V_AUX1 (2x4 12V Power Connector and 2x12 Main Power Connector)



P12V_AUX1

Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V



Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	-5V
9	5VSB (stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	3.3V	24	GND

4. Wait for BMC firmware Booting message as below then you can get DHCP IP address of Management Lan as “10.1.27.24”

```

COM4 - PuTTY
CBR0-1234567012345670123456701234567
CBR134Done

U-Boot 2009.01 (Apr 30 2015 - 18:16:20) Avocent (0.0.9) EVB

Board: AST2400
I2C: ready
DRAM: 128 MB
Flash: Bank (1) Size: 32 MB in 512 Sectors (MXIC MX25L25735)
In: serial
Out: serial
Err: serial
H/W: AST2400 series chip Rev. 01
Net:
RTL8211E, EEECR = 0x06
RTL8211E, EEEAR = 0x00
RTL8211E, EEELPAR = 0x00
RTL8211E, LACR = 0xc1
RTL8211E, LCR = 0x9742
eth#0, eth#1
Hit any key to stop autoboot: 0
Copying kernel image ... OK
Copying rootfs image ...

COM4 - PuTTY
rm: cannot remove '/tmp/dhcpfailover-countdown_eth1': No such file or directory
avrtifconfig command line: /usr/sbin/avrtifconfig eth1 inet dhcp renew add 10.1.
27.24 netmask 255.255.255.0 route 10.1.27.253 domain gigabyte.intra dns1 10.1.1.
2 dns2 0.0.0.0 dns3 0.0.0.0
add command
Store IPv4 '10.1.27.24'
== Requested Network Config Changes ==
Global Conf
Domain -----> 'gigabyte.intra'
- Interface Conf (ID: 1) -
ifIPv4.DHCP -----> '87'
ifIPv4.addr -----> '10.1.27.24'
ifIPv4.Netmask ----> '255.255.255.0'
ifIPv4.szGW -----> '10.1.27.253'
ifIPv4.szDNS1 ----> '10.1.1.2'
ifIPv4.szDNS2 ----> '0.0.0.0'
ifIPv4.szDNS3 ----> '0.0.0.0'
ifIPv6.AutoConf --> 'c0'
=====
set dynamic global configuration, status 0
set dynamic interface configuration, status 0
rm: cannot remove '/tmp/eth1_dhcpinfo': No such file or directory
----netapply_p2[2534]: get DcmiMode 2!
/etc/sysapps_script/S_appweb.sh start
  
```

1.5 How to entry uBoot shell environment.

Follow the instruction below for entry uBoot Shell environment:

1. Please follow “1.3 How to Power on the system” to power on the mother board.
2. When system start UBOOT, please Hit any key to stop autoboot and entry uBoot shell environment.

```
U-Boot 2013.04 (Mar 17 2015 - 23:01:13)      REV: 1.13.00-F03a ( uart3 )
CPU0: APM ARM 64-bit Potenza Rev B0 1400MHz PCP 1400MHz
      32 KB ICACHE, 32 KB DCACHE
      SOC 2000MHz IOBAXI 400MHz AXI 250MHz AHB 125MHz GFC 66.667MHz
Boot from SDIO
Board: GIGABYTE MP30AR0 - AppliedMicro APM883408-xNA24SPT Customer Board
I2C:   ready

DRAM:  ECC 8 GiB @ 1600MHz
SF:    Detected MX25L25635F with page size 64 KiB, total 32 MiB

MMC:   X-Gene SD/SDIO/eMMC: 0
PCIE0: (RC) link down
PCIE2: (RC) X1 GEN-1 link up
PCIE3: (RC) link down
 00:00.0 - 10e8:e004 - Bridge device
 01:00.0 - 1a03:1150 - Bridge device
 02:00.0 - 1a03:2000 - Display controller
Video: ASPEED VGA Card (1a03, 2000) found @(2:0:0)
Mode: 1024x768x32 48kHz 60Hz
In:    serial
Out:   serial
Err:   serial
CPUs:  11111111
Net:   eth0
Hit any key to stop autoboot: 0
MP30HR0#
```

1.6 How to booting in OpenLinux (Built-in)

Follow the instruction below for OpenLinux booting:

1. Please follow “1.3 How to Power on the system” to power on the mother board.
2. The system will entry OpenLinux automatically if no any boot devices exist. (ex. SD card/USB memory stick/SATA hard disk)

```
Retrying trigger udev events, if any...done
Starting vsftpd: OK
Starting HPA's tftpd: done
Starting httpd:
Configuring X-Gene optimized parameters
Done
Configuring MP30AR0 LEDs configuration
Done

POWERED BY:

X   X           GGGG
X  X           G  G
X X           G    EEEEE N NNNN EEEEE
X   ##### G  GGG E  E NN  N E  E
X X           G  G EEEEEEE N  N EEEEEEE
X  X           G  G E    N  N E
X   X           GGGGG EEEEE N  N EEEEE (TM)

Welcome to Applied Micro X-Gene 64-bit ARM Server Platform

Applied Micro Linux 3.12.0 (aarch64) (/dev/ttyS0)
mp30ar0 login: █
```

3. Enter the following values for login:

Username: **root**

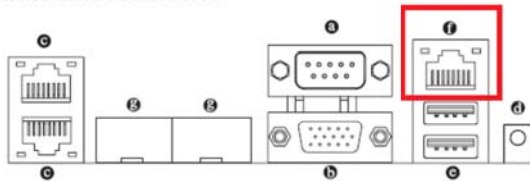
Password: **root**

1.7 How to connect to Web console of BMC

Follow the instruction below for connects Web Console of BMC via Management Lan:

1. Connects RJ45 LAN cable to Management Lan Port

Back Panel Connectors



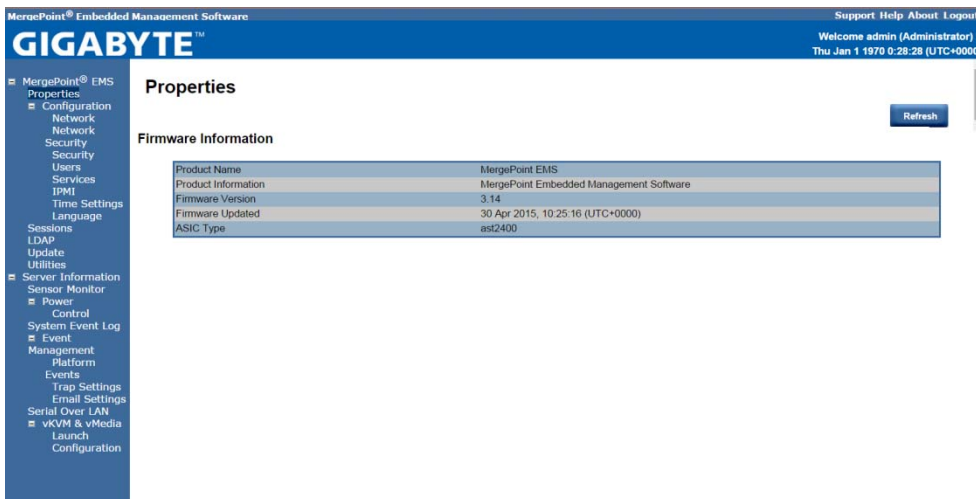
f KVM Server Management 10/100/1000 MbpsLAN Port (Dedicated LAN Port)

The LAN port provides Internet connection with data transfer speeds of 10/100/1000Mbps. This port is the dedicated LAN port for server management.

2. Please follow “1.4 How to get BMC DHCP IP address via debug console” to get DHCP IP address of Management Lan.
3. Open a web browser and type in your identified IP(DHCP IP address of Management Lan). The IP address can be found using your DHCP server.



4. A dialog box prompts you to enter Username and Password.
5. Enter the following values:
Username: **admin**
Password: **password**
6. Then you can find some information as below.



1.8 How to confirm uBoot/BMC firmware version

Follow the instruction below to get firmware version information:

There are three kind of firmware as below:

1. About Bsp firmware:

- A. Please follow “1.3 How to Power on the system” to power on the mother board.
- B. Get Bsp firmware version and build day as below:

```
U-Boot 2013.04 (Jun 16 2015 - 16:06:22)          REV: 1.16.00-F06a ( uart0 )

CPU0: APM ARM 64-bit Potenza Rev B0 2400MHz PCP 2400MHz
      32 KB ICACHE, 32 KB DCACHE
      SOC 2000MHz IOBAXI 400MHz AXI 250MHz AHB 200MHz GFC 125MHz
Boot from SPI-NOR
Slimpro FW:
  Ver: 2.4 (build 01.16.00.00 2015/06/11)
  TPC: disabled
  AVS: supported (margin: -0mV)
  RST: supported
  PWROFF: supported
Board: GIGABYTE MP30AR0 - AppliedMicro APM883408-xNA24SPT Customer Board
I2C:   ready

DRAM:  ECC 4 GiB @ 1066MHz
SF:    Detected MX25L25635F with page size 64 KiB, total 32 MiB

MMC:   X-Gene SD/SDIO/eMMC: 0
PCIE0: (RC) link down
PCIE2: (RC) X1 GEN-1 link up
PCIE3: (RC) link down
00:00.0 - 10e8:e004 - Bridge device
```

2. About uBoot firmware

- A. Please follow “1.3 How to Power on the system” to power on the mother board.
- B. Get uBoot firmware version as below:

```

U-Boot 2013.04 (Jun 16 2015 - 16:06:22) REV: 1.16.00-F06a ( uart0 )

CPU0: APM ARM 64-bit Potenza Rev B0 2400MHz PCP 2400MHz
      32 KB ICACHE, 32 KB DCACHE
      SOC 2000MHz IOBAXI 400MHz AXI 250MHz AHB 200MHz GFC 125MHz
Boot from SPI-NOR
Slimpro FW:
  Ver: 2.4 (build 01.16.00.00 2015/06/11)
  TPC: disabled
  AVS: supported (margin: -0mV)
  RST: supported
  FWROFF: supported
Board: GIGABYTE MP30AR0 - AppliedMicro APM883408-xNA24SPT Customer Board
I2C:   ready

DRAM:  ECC 4 GiB @ 1066MHz
SF: Detected MX25L25635F with page size 64 KiB, total 32 MiB

MMC:   X-Gene SD/SDIO/eMMC: 0
PCIE0: (RC) link down
PCIE2: (RC) X1 GEN-1 link up
PCIE3: (RC) link down
00:00.0 - 10e8:e004 - Bridge device

```

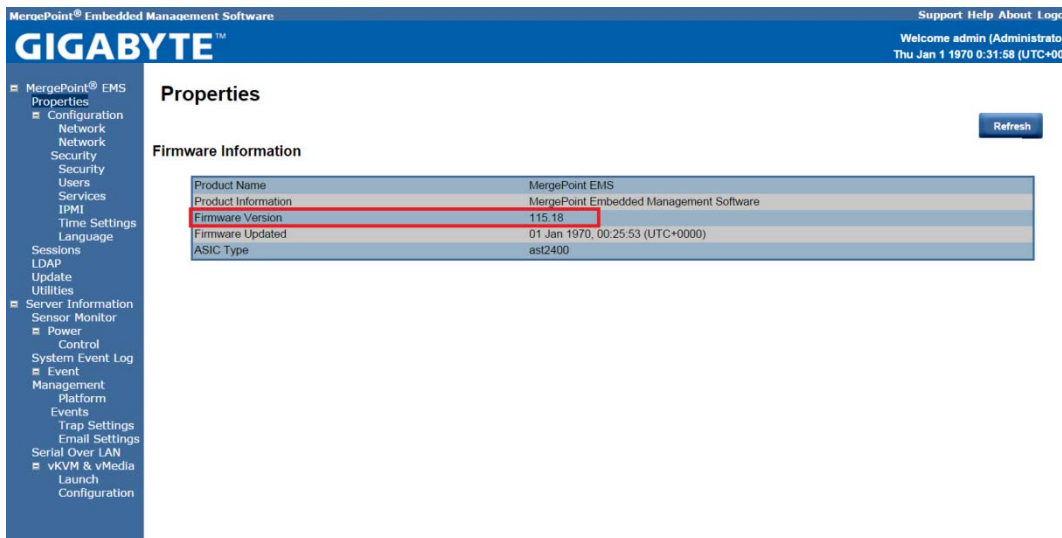
3. BMC firmware

There are two ways to confirm BMC firmware information as below:

- A. Use Management LAN (Out of Band)
- B. Use IPMI command under OpenLinux

Follow the instruction below to get BMC Firmware version via Management LAN (Out of Band):

1. Please follow “1.7 How to connect to Web console of BMC” to entry Web console of BMC.
2. Confirm the Firmware Version of Merge point Embedded Management Software.



Follow the instruction below to get BMC Firmware version under OpenLinux OS:

1. Please follow “1.6 How to booting in OpenLinux (Built-in)” to entry OpenLinux.
2. Type “bmc-info --no-probing --driver-type=SSIF --driver-address=0x10 --driver-device=/dev/i2c-1 --get-device-id --debug” to get device id from IPMI.

```

[ 2h] = ipmi_version_major[ 4b]
[ 0h] = ipmi_version_minor[ 4b]
[ 1h] = additional_device_support.sensor_device[ 1b]
[ 1h] = additional_device_support.sdr_repository_device[ 1b]
[ 1h] = additional_device_support.sel_device[ 1b]
[ 1h] = additional_device_support.fru_inventory_device[ 1b]
[ 1h] = additional_device_support.ipmb_event_receiver[ 1b]
[ 0h] = additional_device_support.ipmb_event_generator[ 1b]
[ 1h] = additional_device_support.bridge[ 1b]
[ 1h] = additional_device_support.chassis_device[ 1b]
[ 0h] = manufacturer_id.id[20b]
[ 0h] = manufacturer_id.reserved1[ 4b]
[ 0h] = product_id[16b]
[ 0h] = auxiliary_firmware_revision_information[32b]
Device ID : 32
Device Revision : 1
Device SDRs : unsupported
Firmware Revision : 1.35
Device Available : yes (normal operation)
IPMI Version : 2.0
Sensor Device : supported
SDR Repository Device : supported
SEL Device : supported
FRU Inventory Device : supported
IPMB Event Receiver : supported
IPMB Event Generator : unsupported
Bridge : supported
Chassis Device : supported
Manufacturer ID : Reserved (0)
Product ID : 0
Auxiliary Firmware Revision Information : 00000000h

```

1.9 How to issue a IPMI command under Openlinux (Build in)

Follow the instruction below for onboard firmware update:

1. Please follow “1.6 How to booting in OpenLinux (Built-in)” to entry OpenLinux.
2. Booting into OpenLinux and type “bmc-info --no-probing --driver-type=SSIF --driver-address=0x10 --driver-device=/dev/i2c-1 --get-device-id --debug” to get device id from IPMI.

```

[      2h] = ipmi_version_major[ 4b]
[      0h] = ipmi_version_minor[ 4b]
[      1h] = additional_device_support.sensor_device[ 1b]
[      1h] = additional_device_support.sdr_repository_device[ 1b]
[      1h] = additional_device_support.sel_device[ 1b]
[      1h] = additional_device_support.fru_inventory_device[ 1b]
[      1h] = additional_device_support.ipmb_event_receiver[ 1b]
[      0h] = additional_device_support.ipmb_event_generator[ 1b]
[      1h] = additional_device_support.bridge[ 1b]
[      1h] = additional_device_support.chassis_device[ 1b]
[      0h] = manufacturer_id.id[20b]
[      0h] = manufacturer_id.reserved1[ 4b]
[      0h] = product_id[16b]
[      0h] = auxiliary_firmware_revision_information[32b]
Device ID      : 32
Device Revision : 1
Device SDRs    : unsupported
Firmware Revision : 1.35
Device Available : yes (normal operation)
IPMI Version   : 2.0
Sensor Device  : supported
SDR Repository Device : supported
SEL Device     : supported
FRU Inventory Device : supported
IPMB Event Receiver : supported
IPMB Event Generator : unsupported
Bridge        : supported
Chassis Device : supported
Manufacturer ID : Reserved (0)
Product ID    : 0
Auxiliary Firmware Revision Information : 00000000h

```

PS: Please make sure your BMC firmware is latest version and include SSIF function support if you find a “Internal System error” as below.

```

Configuring MP30AR0 LEDs configuration
Done

POWERED BY:

X      X      GGGG
X  X      G  G
X  X      G  GGG  EEEEE  N  NNNN  EEEEE
X      ##### G  GGG  E  E  NN  N  E  E
X  X      G  G  EEEEEEE  N  N  EEEEEEE
X  X      G  G  E      N  N  E
X      X      GGGGG  EEEEE  N  N  EEEEE  (TM)

Welcome to Applied Micro X-Gene 64-bit ARM Server Platform

Applied Micro Linux 3.12.0 (aarch64) (/dev/ttyS0)
mp30ar0 login: root
Password:
[root@mp30ar0 ~]# bmc-info --no-probing --driver-type=SSIF --driver-address=0x10
--driver-device=/dev/i2c-1 --get-device-id --debug
=====
Get Device ID Request
=====
SSIF Header:
-----
[      0h] = lun[ 2b]
[      6h] = net_fn[ 6b]
IPMI Command Data:
-----
[      1h] = cmd[ 8b]
ipmi_cmd_get_device_id: internal system error

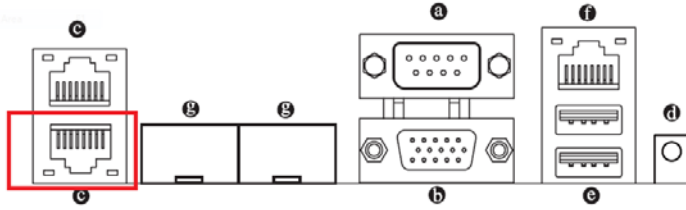
```

1.10 How to confirm add-in card devices

Follow the instruction below for Add-In device confirm:

1. Please follow “1.14 Booting into Ubuntu OS with SD card ” to boot into Ubuntu OS.
2. Connects the LAN cable to RJ-45 LAN Port. (In this case that we connect as below LAN port that marked by red box).

Back Panel Connectors



c RJ-45 LAN Ports (Gigabit Ethernet LAN Ports)

The Gigabit Ethernet LAN port provides Internet connection at up to 1 Gbps data rate. The following describes the states of the LAN port LEDs.

3. List all onboard LAN information use “ifconfig -a”

```
COM4 - PuTTY
ubuntu@arm64:~$ sudo ifconfig -a
[sudo] password for ubuntu:
bond0    Link encap:Ethernet  HWaddr fe:54:fe:c0:68:eb
         BROADCAST MASTER MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:0
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

dummy0   Link encap:Ethernet  HWaddr ea:44:ce:2f:77:fe
         BROADCAST NOARP  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:0
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

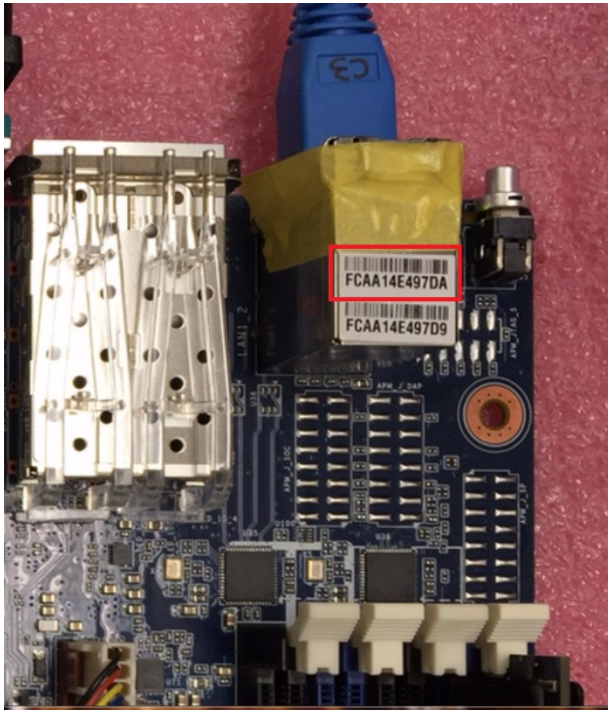
eth0     Link encap:Ethernet  HWaddr fc:aa:14:e4:97:d9
         inet addr:192.168.1.2  Bcast:192.168.1.255  Mask:255.255.255.0
         inet6 addr: fe80::fea:14ff:fee4:97d9/64 Scope:Link
         UP BROADCAST MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:6 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:508 (508.0 B)

eth13    Link encap:Ethernet  HWaddr fc:aa:14:e4:97:dc
         BROADCAST MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

eth14    Link encap:Ethernet  HWaddr fc:aa:14:e4:97:da
         BROADCAST MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

eth16    Link encap:Ethernet  HWaddr fc:aa:14:e4:97:db
         BROADCAST MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo       Link encap:Local Loopback
         inet addr:127.0.0.1  Mask:255.0.0.0
         inet6 addr: ::1/128 Scope:Host
         UP LOOPBACK RUNNING  MTU:65536  Metric:1
         RX packets:8 errors:0 dropped:0 overruns:0 frame:0
         TX packets:8 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:0
```



4. Enabled DHCP service to get DHCP IP address as below:
 - I. Enabled eth14 use “sudo ifconfig eth14 up”.
 - II. Enabled DHCP service for eth14 use “sudo dhclient eth14”.
 - III. Used “ifconfig” to confirm result as below

```
ubuntu@arm64:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr fc:aa:14:e4:97:d9
          inet addr:192.168.1.2  Bcast:192.168.1.255  Mask:255.255.255.0
          inet6 addr: fe80::feaa:14ff:fee4:97d9/64 Scope:Link
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:6 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:508 (508.0 B)

eth14     Link encap:Ethernet  HWaddr fc:aa:14:e4:97:da
          inet addr:10.1.27.107  Bcast:10.1.27.255  Mask:255.255.255.0
          inet6 addr: fe80::feaa:14ff:fee4:97da/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:742 errors:0 dropped:0 overruns:0 frame:0
          TX packets:10 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:83264 (83.2 KB)  TX bytes:1050 (1.0 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:8 errors:0 dropped:0 overruns:0 frame:0
          TX packets:8 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:728 (728.0 B)  TX bytes:728 (728.0 B)

ubuntu@arm64:~$
```

5. Download lspci tools kit use “sudo apt-get install pciutils”
6. Used “lspci -v” to confirm add-in device.

```
ubuntu@arm64:~$ lspci -v
0001:00:00.0 PCI bridge: Applied Micro Circuits Corp. Device e004 (rev 04) (prog-if 00 [Normal decode])
    Flags: bus master, fast devsel, latency 0
    Memory at <ignored> (64-bit, non-prefetchable)
    Bus: primary=00, secondary=01, subordinate=02, sec-latency=0
    I/O behind bridge: 00000000-00000fff
    Memory behind bridge: 30000000-31ffffff
    Capabilities: <access denied>
    Kernel driver in use: pcieport

0001:01:00.0 PCI bridge: ASPEED Technology, Inc. AST1150 PCI-to-PCI Bridge (rev 03) (prog-if 00 [Normal decode])
    Flags: bus master, fast devsel, latency 0
    Bus: primary=01, secondary=02, subordinate=02, sec-latency=0
    I/O behind bridge: 00000000-00000fff
    Memory behind bridge: 30000000-31ffffff
    Capabilities: <access denied>

0001:02:00.0 VGA compatible controller: ASPEED Technology, Inc. ASPEED Graphics Family (rev 30) (prog-if 00 [VGA controller])
    Subsystem: ASPEED Technology, Inc. ASPEED Graphics Family
    Flags: bus master, medium devsel, latency 0, IRQ 238
    Memory at 9130000000 (32-bit, non-prefetchable) [size=16M]
    Memory at 9131000000 (32-bit, non-prefetchable) [size=128K]
    I/O ports at 10000 [size=128]
    Capabilities: <access denied>
    Kernel driver in use: ast
```

1.11 How to get sensor information

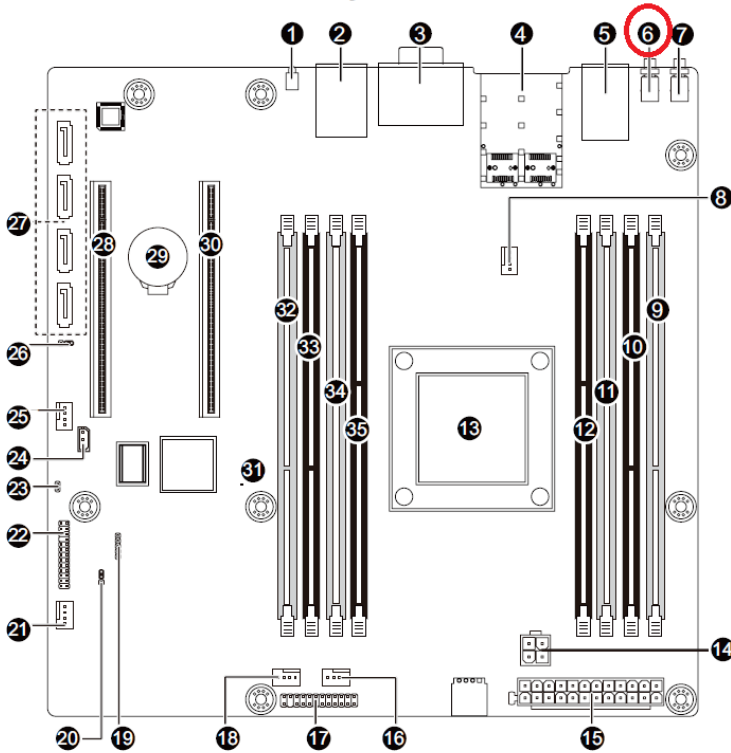
There are two ways as below to get onboard sensor information:

- A. Connects to Web console of BMC via Management LAN
- B. Booting into Ubuntu OS to get sensor information

Follow the instruction below for get onboard sensor information via Management LAN (Out of Band):

1. Please follow "1.7 How to connect to Web console of BMC" to entry Web console of BMC.
2. Push the Power Switch (SW_PWR) to power on the system.

MP30-AR0 Motherboard Layout



Item	Code	Description
1	LED_STA	System status LED
2	USB2_MLAN	BMC Management LAN port (top)/USB 2.0 ports (bottom)
3	VGA1_COM1	Serial port (top)/VGA port (bottom)
4	SFP+_1_2	10G Fiber LAN ports
5	LAN1_2	LAN ports
6	SW_PWR	Power button/LED
7	SW_ID	ID switch button/LED
8	CPU_FAN	CPU fan connector
9	DIMM_PO_A0	Channel 1 slot 0
10	DIMM_PO_A1	Channel 1 slot 1
11	DIMM_PO_B0	Channel 2 slot 0
12	DIMM_PO_B1	Channel 2 slot 1
13	CPU0	ARM CPU
14	P12V_AUX1	4 pin power connector
15	ATX1	24 pin main power connector
16	SYS_FAN1	System fan connector#1
17	FP_1	Front panel header (for Server system)
18	SYS_FAN2	System fan connector#2
19	PMBUS	PMBus header
20	CLR_CMOS	Clear CMOS jumper
21	SYS_FAN3	System fan connector#3
22	BP_1	HDD back plane board header
23	CASE_OPEN	Case open intrusion alert header
24	IPMB	IPMB connector
25	SYS_FAN4	System fan connector#4
26	SATA_DOM0	SATA port 3 DOM support jumper
27	SATA0/1/2/3	SATA3 6Gb/s connectors
28	PCIE_2	PCI Express x16 slot
29	BAT	Battery socket
30	PCIE_1	PCI Express x16 slot
31	LED_BMC	BMC firmware readiness LED
32	DIMM_PO_C0	Channel 3 slot 0
33	DIMM_PO_C1	Channel 3 slot 1
34	DIMM_PO_D0	Channel 4 slot 0
35	DIMM_PO_D1	Channel 4 slot 1

3. Waiting around 20 seconds for sensor ready.
4. Click the “Sensor Monitor” of Merge point Embedded Management Software.

MergePoint® Embedded Management Software Support Help About Logout

GIGABYTE™ Welcome admin (Administrator)
Thu Jan 1 1970 1:07:19 (UTC+0000)

- Properties
- Configuration
 - Network
 - Network
 - Security
 - Security
 - Users
 - Services
 - IPMI
 - Time
 - Settings
 - Language
- Sessions
- LDAP
- Update
- Utilities
- Server
 - Information
 - Sensor Monitor**
 - Power
 - Control
 - System Event
 - Log
 - Event
 - Management
 - Platform
 - Events
 - Trap
 - Settings
 - Email
 - Settings
 - Serial Over LAN
 - vKVM & vMedia
 - Launch
 - Configuration

Sensor Monitor

Refresh

General Settings

Auto Refresh Interval: Never Auto-Refresh

Sensor Type: Temperatures

Display Type: All Sensors Active Sensors

Probe List

Status	Probe Name	Reading	Lower Non-Critical	Upper Non-Critical	Lower Critical	Upper Critical	Lower Non-Recoverable	Upper Non-Recoverable
✔	CPU0_TEMP	44 °C	5 °C	100 °C	0 °C	105 °C	N/A	N/A
⊘	DIMM_P0_A0	Unavailable	5 °C	75 °C	0 °C	80 °C	N/A	N/A
⊘	DIMM_P0_A1	Unavailable	5 °C	75 °C	0 °C	80 °C	N/A	N/A
⊘	DIMM_P0_B0	Unavailable	5 °C	75 °C	0 °C	80 °C	N/A	N/A
⊘	DIMM_P0_B1	Unavailable	5 °C	75 °C	0 °C	80 °C	N/A	N/A
⊘	DIMM_P0_C0	Unavailable	5 °C	75 °C	0 °C	80 °C	N/A	N/A
⊘	DIMM_P0_C1	Unavailable	5 °C	75 °C	0 °C	80 °C	N/A	N/A
⊘	DIMM_P0_D0	Unavailable	5 °C	75 °C	0 °C	80 °C	N/A	N/A
⊘	DIMM_P0_D1	Unavailable	5 °C	75 °C	0 °C	80 °C	N/A	N/A
✔	MB_TEMP1	36 °C	5 °C	55 °C	0 °C	60 °C	N/A	N/A
✔	MB_TEMP2	32 °C	5 °C	55 °C	0 °C	60 °C	N/A	N/A
✔	MB_TEMP3	27 °C	5 °C	55 °C	0 °C	60 °C	N/A	N/A

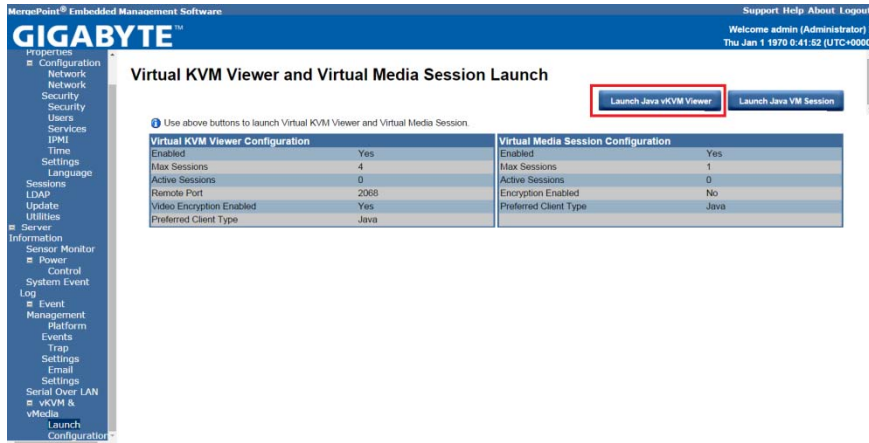
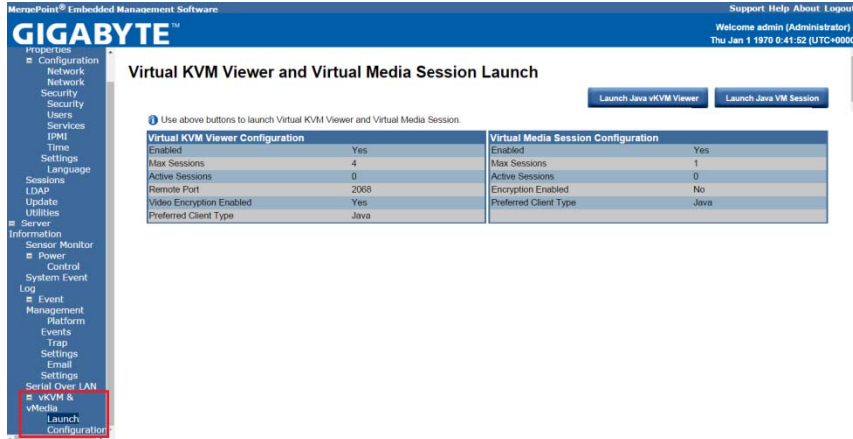
Follow the instruction below for get onboard sensor information under Ubuntu OS:

Not ready yet.

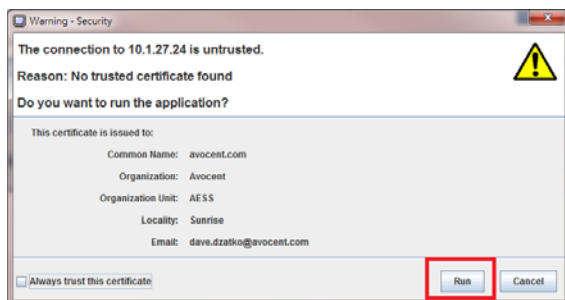
1.13 How to enabled vKVM function

Follow the instruction below for vKVM function enabled:

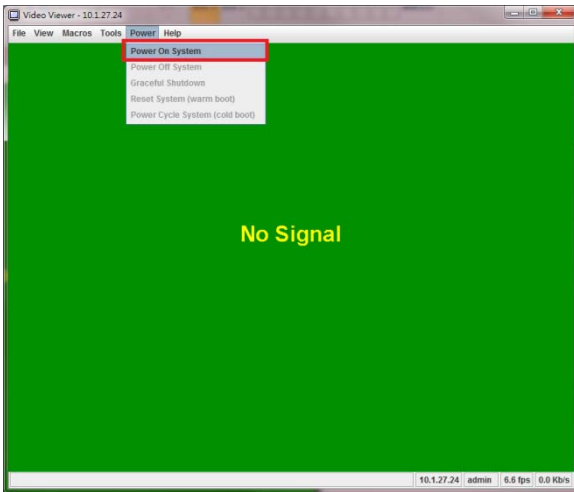
1. Please follow “1.7 How to connect to Web console of BMC” to entry Web console of BMC.
2. Click the “vKVM & vMedia” of Merge point Embedded Management Software.
3. Click the “Launch Java vKVM Viewer” of Merge point Embedded Management Software.



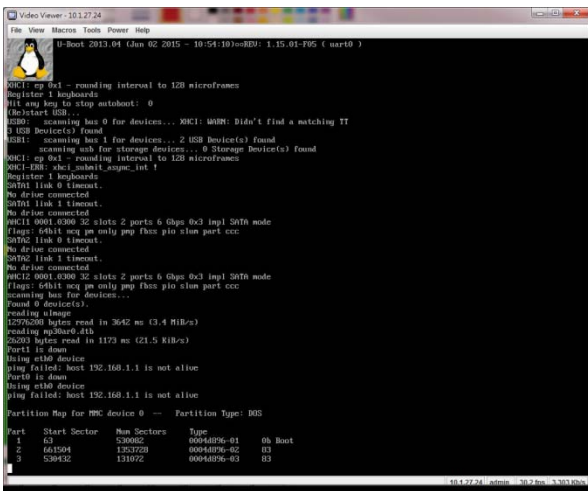
4. Click the “Run” button of Warning –Security Box.



5. Selects the “Power on System” of Video Viewer to do the system Power on.



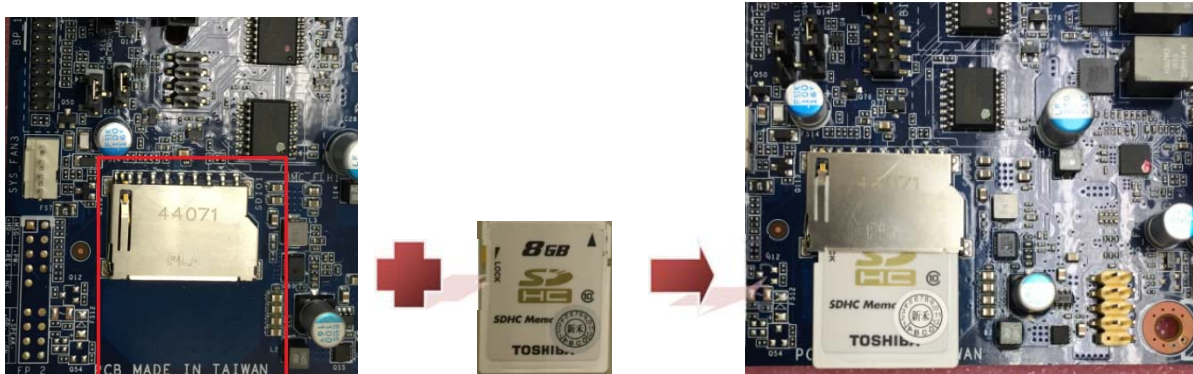
6. You can remote control the system via vKVM function now.



1.14 Booting into Ubuntu OS with SD card

Follow the instruction below for Booting into Ubuntu OS with SD card:

1. Please follow "1.2 How to make Ubuntu OS image to SD card" to make the SD card include Ubuntu OS.
2. Inserted the SD card into SD card socket.



3. Please follow "1.3 How to Power on the system" to power on the mother board.
4. The MMC device 0 will display Partition Map information as below if SD card exist.

```
COM4 - PuTTY
scanning bus for devices...
Found 0 device(s).
reading uImage
** Unable to read file uImage **
reading mp30ar0.dtb
** Unable to read file mp30ar0.dtb **
SF: Detected MX25L25635F with page size 64 KiB, total 32 MiB, mapped at 00000000
00000020
SF: 32768 KiB MX25L25635F at 0:0 is now current device
.....
SF: flash read success (15728640 bytes @ 0x0000)
SF: 0:0 probed
.....
SF: flash read success (1048576 bytes @ 0xc0000)
port1 is down
Using eth0 device
ping failed; host 192.168.1.1 is not alive
port0 is down
Using eth0 device
ping failed; host 192.168.1.1 is not alive

Partition Map for MMC device 0 -- Partition Type: DOS
Part  Start Sector  Num Sectors  UUID                               Type
-----
 1      63             530082       000hd996-01                        0B Boot
 2     661504        1353728     000hd996-02                        83
 3     530432        131072       000hd996-03                        03
```

5. The default Username and Password as following values:

Username: **ubuntu**

Password: **ubuntu**

```
COM4 - PuTTY
device=eth0, hvaddr=fa:aa:14:e4:97:d9, ipaddr=192.168.1.2, mask=255.255.255.0, gw=192.168.1.254
host=mp30ar0, domain, nis-domain=(none)
bootserver=192.168.1.1, rootserver=192.168.1.1, rootpath=

Waiting 5 sec before mounting root device...
md: Waiting for all devices to be available before autodetect
md: If you don't use raid, use raid=noautodetect
md: Autodetecting RAID arrays.
md: Scanned 0 and added 0 devices.
md: autorun ...
md: ... autorun DONE.
EXT3-fs (mmcblk0p2): error: couldn't mount because of unsupported optional featu
res (240)
EXT2-fs (mmcblk0p2): error: couldn't mount because of unsupported optional featu
res (244)
EXT4-fs (mmcblk0p2): recovery complete
EXT4-fs (mmcblk0p2): mounted filesystem with ordered data mode. Opts: (null)
VFS: Mounted root (ext4 filesystem) on device 179:2.
devtmpfs: mounted
Freeing unused kernel memory: 264K (ffffc000c70000 - fffffc000cb2000)
Mount failed for selinuxfs on /sys/fs/selinux: No such file or directory
init: ureadahead main process (174) terminated with status 5

Ubuntu Trusty Tahr (development branch) arm64 tty0
arm64 login: ubuntu
Password:
Last login: Sun May 3 15:00:46 UTC 2012 on tty0
ubuntu@arm64:~$
```

ADVANCE SECTION

2.1 How to update onboard firmware

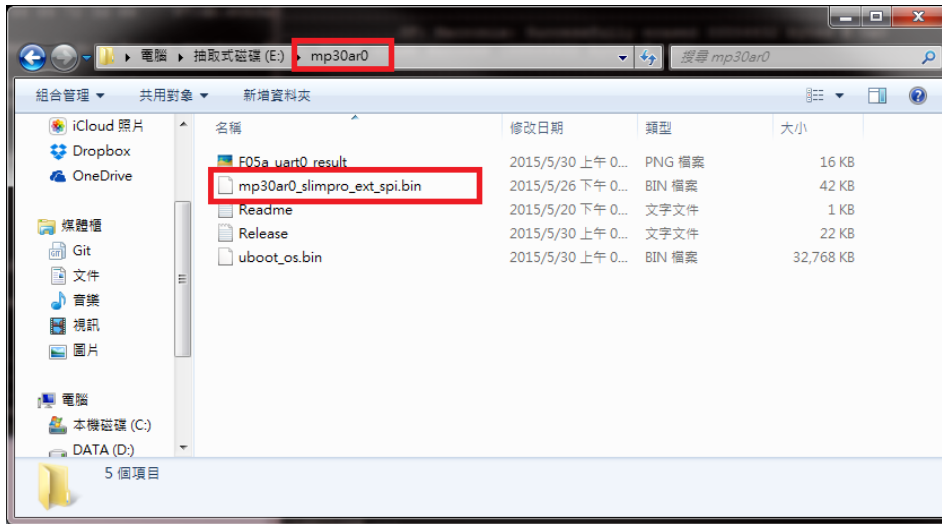
Follow the instruction below for onboard firmware update:

There are three kind of firmware as below and have different way to update:

1. Bsp firmware

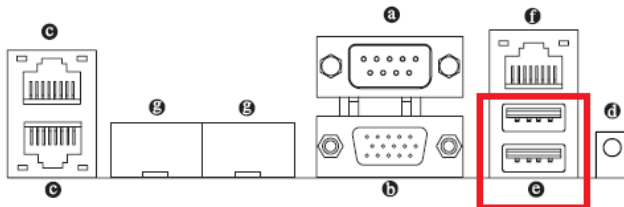
A. Prepare a USB flash (FAT32 Format)

B. Created a “mp30ar0” directory and put the latest version firmware image (mp30ar0_slimpro_ext_spi.bin) in here.



C. Inserted the USB flash into USB port as below.

Back Panel Connectors



e USB 2.0 Port

The USB port supports the USB 2.0 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

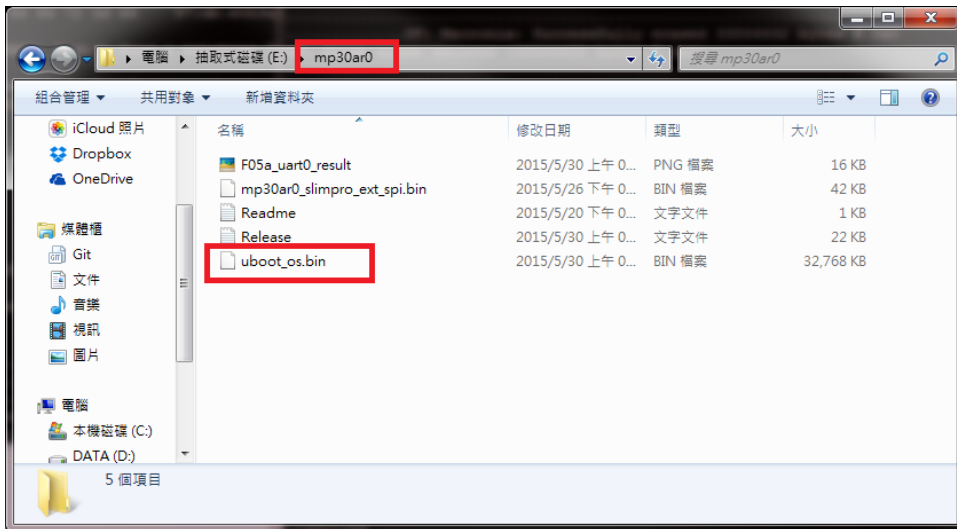
D. Please follow “1.5 How to entry uBoot shell environment” to entry uBoot shell environment.

E. Type “run upd_slimpro” to start update Bsp firmware and type “reset” to restart system after firmware update finish.

4. uBoot firmware

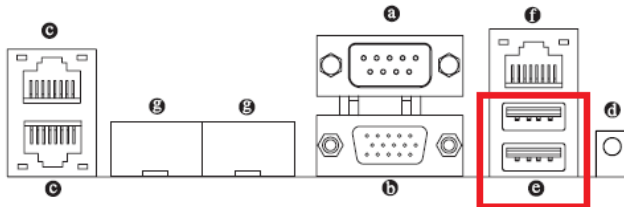
A. Prepare a USB flash (FAT32 Format)

B. Created a “mp30ar0” directory and put the latest version firmware image (uboot_os.bin) in here.



C. Inserted the USB flash into USB port as below.

Back Panel Connectors



e USB 2.0 Port

The USB port supports the USB 2.0 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

D. Please follow “1.5 How to entry uBoot shell environment” to entry uBoot shell environment.

E. Type “run flash_uboot_os_img” to start update uBoot firmware and the system will restart after firmware update finish.

```

MP30AR0#
MP30AR0# run flash_uboot_os_img
filesize=??
4004000000: 65 74 68 31 61 64 64 72 3d 66 63 3a 61 61 3a 31      eth1addr=fc:aa:1
4004000010: 34 3a 65 34 3a 39 37 3a 64 61 0a 65 74 68 32 61      4:e4:97:da.eth2a
4004000020: 64 64 72 3d 66 63 3a 61 61 3a 31 34 3a 65 34 3a      ddr=fc:aa:14:e4:
4004000030: 39 37 3a 64 62 0a 65 74 68 33 61 64 64 72 3d 66      97:db.eth3addr=f
(Re)start USB...
USB0: scanning bus 0 for devices... XHCI: WARN: Didn't find a matching TT
3 USB Device(s) found
USB1: scanning bus 1 for devices... 3 USB Device(s) found
      scanning usb for storage devices... XHCI: ep 0x1 - rounding interval to 1
      microframes
1 Storage Device(s) found
XHCI: ep 0x1 - rounding interval to 128 microframes
XHCI-ERR: xhci_submit_async_int !
Register 1 keyboards
reading mp30ar0/uboot_os.bin
33554432 bytes read in 11218 ms (2.9 MiB/s)
filesize=2000000
SF: Detected MX25L25635F with page size 64 KiB, total 32 MiB, mapped at 00000000
0000ffff
SF: 32768 KiB MX25L25635F at 0:0 is now current device

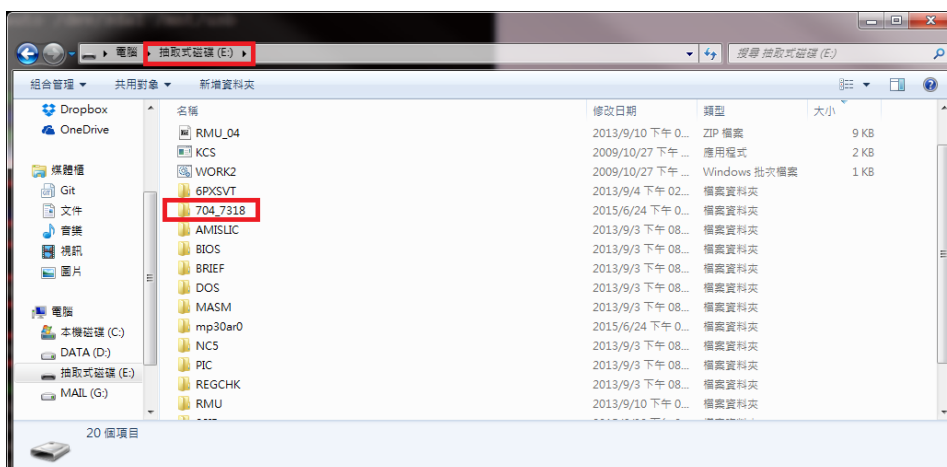
      SF: erased 33554432 bytes @ 0x0
.....
.....
.....SF: Macronix: Successfully erased 33554432 bytes @ 0x0
SF: flash erase success (33554432 bytes @ 0x0)

```

5. BMC firmware

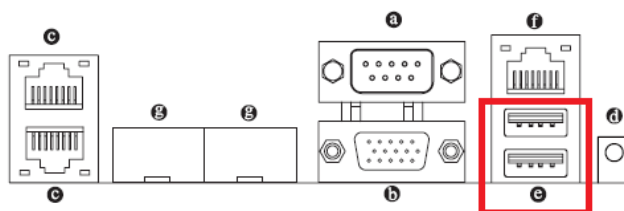
There are two kind of firmware as below ad have different way to update:

1. Update under OpenLinux
 - A. Prepare a USB flash (FAT32 Format)
 - B. Unzip the BMC firmware package to USB flash.



- C. Inserted the USB flash into USB port as below.

Back Panel Connectors



e USB 2.0 Port

The USB port supports the USB 2.0 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

- D. Please follow “1.6 How to booting in OpenLinux (Built-in)” to entry OpenLiunx.
- E. Booting into OpenLinux and use “fdisk -l” command to list all Storage.

```
[root@mp30ar0 ~]# fdisk -l
Disk /dev/mtdblock0: 960 KiB, 983040 bytes, 1920 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/mtdblock1: 64 KiB, 65536 bytes, 128 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/mtdblock2: 15 MiB, 15728640 bytes, 30720 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/mtdblock3: 16 MiB, 16777216 bytes, 32768 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/sda: 250 MiB, 262144000 bytes, 512000 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x3df06a10

Device Boot Start      End Blocks  Id System
/dev/sda1 *        63     511999 255968+  e W95 FAT16 (LBA)

[root@mp30ar0 ~]# mkdir /mnt/usb
```


- F. Type “mkdir /mnt/usb” to make a USB mount device
- G. Type “mount -v -t auto /dev/sdxx /mnt/usb” to mount USB flash as “/mnt/usb”
- H. Type “cd /mnt/usb” and enter the BMC firmware package directory (ex. 704_7318/utility/fwud/arm-linux/flashall.sh) that you unzip it before.

```
[root@mp30ar0 ~]# mkdir /mnt/usb
[root@mp30ar0 ~]# mount -v -t auto /dev/sda1 /mnt/usb
[root@mp30ar0 ~]# cd /mnt/usb
[root@mp30ar0 usb]# ls
6FXSVT/          BOOTLOG.PRIV*  IO.SYS*        PIC/            TOOLS/          mp30ar0/
704_7318/        BOOTLOG.TXT*  KCS.EXE*       REGCHK/         UTIL/
AMISLIC/         BRIEF/        MASM/          RMU/            WORK2.BAT*
AUTOEXEC.BAT*   COMMAND.COM*  MSDOS.SYS*     RMU_04.zip*     amiboot.ROM*
BIOS/           DOS/          NCS/           SSIF/           ghost11.exe*
[root@mp30ar0 usb]# cd 704_7318/
[root@mp30ar0 704_7318]# ls
doc/            fw/            others/        utility/
[root@mp30ar0 704_7318]# cd utility/
[root@mp30ar0 utility]# ls
fwud/
[root@mp30ar0 utility]# cd fwud/
[root@mp30ar0 fwud]# ls
arm-linux/ dos/          linux/         windows/
[root@mp30ar0 fwud]# cd arm-linux/
[root@mp30ar0 arm-linux]# ls
flash.sh*      flashall.sh*  memsize*       read*           socflash*
[root@mp30ar0 arm-linux]# flashall
-bash: flashall: command not found
[root@mp30ar0 arm-linux]# ./flashall
-bash: ./flashall: No such file or directory
[root@mp30ar0 arm-linux]# ./flashall.sh
exit (1)
Update Firmware for BMC with 128M
Update Root File System
ASPEED SOC Flash Utility v.1.12.00
Find ASPEED Device 1a03:2000 on 2:0.0
```

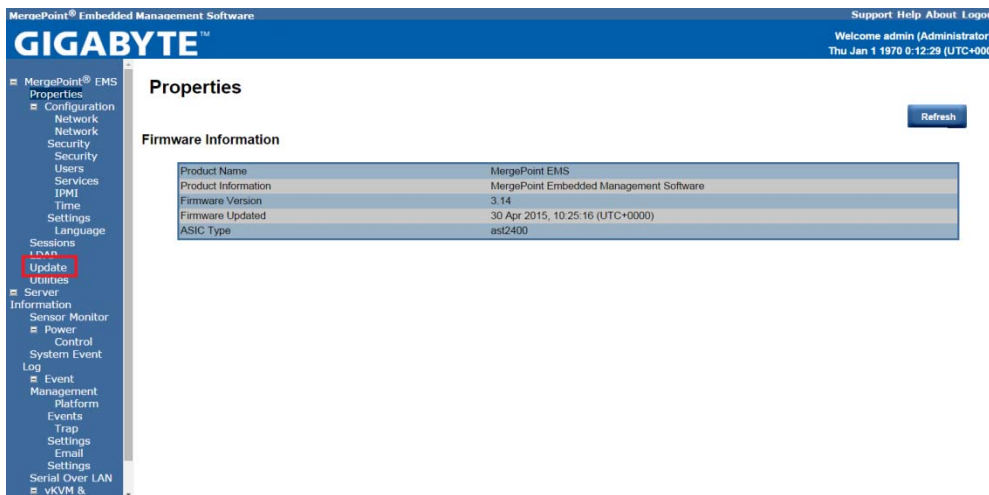
- I. The system will do the power cycle reset after you type “./Flashall.sh” to update BMC firmware and finish.

```
[root@mp30ar0 arm-linux]# ./flashall.sh
exit (1)
Update Firmware for BMC with 128M
Update Root File System
ASPEED SOC Flash Utility v.1.12.00
Find ASPEED Device 1a03:2000 on 2:0.0
Relocate IO Base: 0
MMIO Virtual Address: b76a0000
Found ASPEED Device 1a03:2400 rev. 30
Static Memory Controller Information:
CS0 Flash Type is SPI
CS1 Flash Type is NOR
CS2 Flash Type is NOR
CS3 Flash Type is NOR
CS4 Flash Type is NOR
Boot CS is 0
Option Information:
CS: 0
Flash Type: SPI
[Warning] Don't AC OFF or Reboot System During BMC Firmware Update!!
[SOCFLASH] Flash ID : 1920c2
Find Flash Chip #1: MXIC MX25L256/257
Update Flash Chip #1 O.K.
usb 1-1: USB disconnect, device number 2
Update Flash Chip O.K.
usb 1-1.1: USB disconnect, device number 3
Update Kernel
ASPEED SOC Flash Utility v.1.12.00
Find ASPEED Device 1a03:2000 on 2:0.0
Relocate IO Base: 0
MMIO Virtual Address: alle0000
Found ASPEED Device 1a03:2400 rev. 30
```

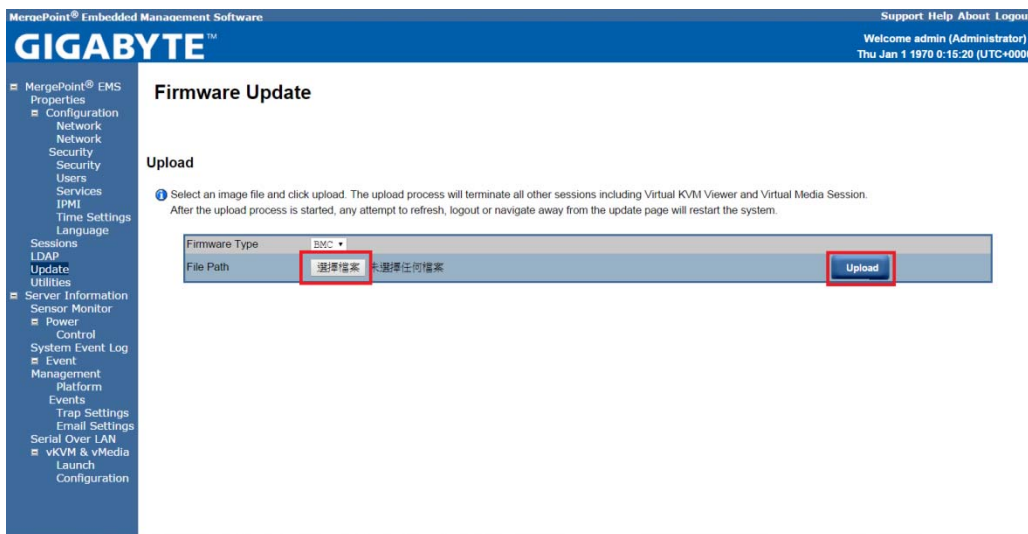
1. Update via Management LAN

Follow the instruction below for BMC Firmware update via Management LAN (Out of Band):

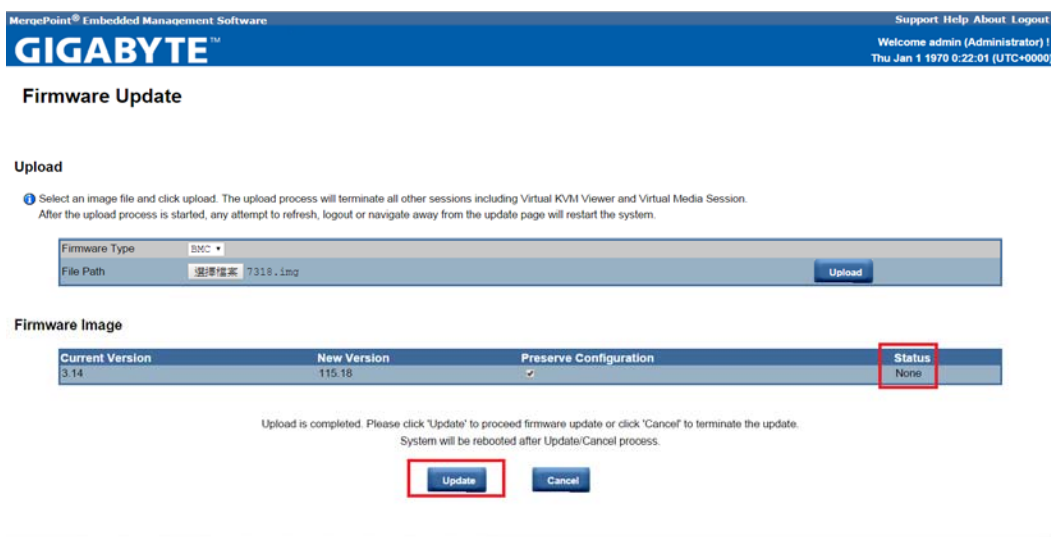
- A. Please follow “1.7 How to connect to Web console of BMC” to entry Web console of BMC.
- B. Click the “Update” of Merge point Embedded Management Software.



- C. Select the BMC firmware image file (*.IMG format) then Click the “Upload” to upload BMC firmware image.



- D. Confirm the status is “None” then click the “Update” button to action firmware update.



- E. Wait for the status become to “100% Completed” then finish the BMC firmware update process.

Firmware Update

Upload

- 1 Select an image file and click upload. The upload process will terminate all other sessions including Virtual KVM Viewer and Virtual Media Session. After the upload process is started, any attempt to refresh, logout or navigate away from the update page will restart the system.

Firmware Type	EMC	Upload
File Path	選擇檔案 7318.img	

Firmware Image

Current Version	New Version	Preserve Configuration	Status
3.14	115.18	<input checked="" type="checkbox"/>	100% Completed

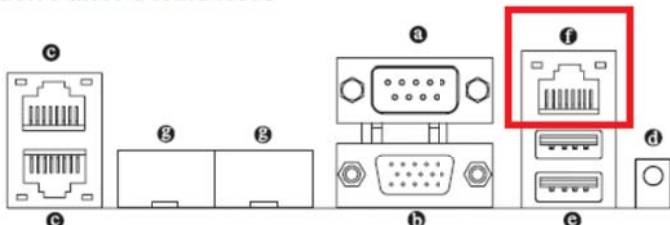
Embedded Management Software Image has been updated successfully.
Embedded Management Software has been reset. You will not be able to access Embedded Management Software with this browser session.
Please wait and reconnect to Embedded Management Software using new browser session.

2.2 How to use Gigabyte utility to scan IP address of Management LAN

Follow the instruction below to get IP address of Management LAN:

1. Download Gigabyte utility from Gigabyte Website.
(http://download.gigabyte.us/FileList/Utility/server_system_utility_command_line_utility_0.2x.zip)
2. Unzip the utility to your hard disk then open the “GbtUtility command line SOP” to setup environment for Gigabyte utility.
3. Dis-connects RJ45 LAN cable from Management Lan Port.

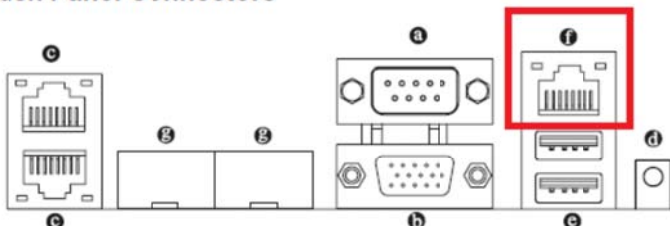
Back Panel Connectors



- f** KVM Server Management 10/100/1000 MbpsLAN Port. (Dedicated LAN Port)
The LAN port provides Internet connection with data transfer speeds of 10/100/1000Mbps. This port is the decated LAN port for server management.

4. Type “java -jar GbtUtility.jar scan **IPRangeStart IPRangeEnd** standard” to scan DHCP IP address.
5. Connects RJ45 LAN cable from Management LAN Port and wait around two minutes.

Back Panel Connectors



- f** KVM Server Management 10/100/1000 MbpsLAN Port. (Dedicated LAN Port)
The LAN port provides Internet connection with data transfer speeds of 10/100/1000Mbps. This port is the decated LAN port for server management.

6. Type “java -jar GbtUtility.jar scan **IPRangeStart IPRangeEnd** standard” to scan DHCP IP address again.
7. You will see a new IP address appears for Management LAN port as below.

```
D:\GBTutility> java -jar GbtUtility.jar scan 10.1.27.1 10.1.27.100 standard
* GIGABYTE CLI v0.22 *
*****
IP range start from 10.1.27.1 to 10.1.27.100
Got bmc IP:
10.1.27.62
10.1.27.79
10.1.27.85
10.1.27.95
=====distribute IP=====
[GbtGetDeviceID] IP(10.1.27.79) exception: con.veraxsystems.vxipmi.connection.Co
nnectionException: Command timed out
[BMCType] Get device ID fail!
Write BMC IP into BMC IP list file!

D:\GBTutility> java -jar GbtUtility.jar scan 10.1.27.1 10.1.27.100 standard
* GIGABYTE CLI v0.22 *
*****
IP range start from 10.1.27.1 to 10.1.27.100
Got bmc IP:
10.1.27.62
10.1.27.79
10.1.27.85
10.1.27.94
10.1.27.95
=====distribute IP=====

D:\GBTutility>
```

2.3 How to process the OS booting under uBoot shell environment.

Follow the instruction below for processing the OS Booting under uBoot Shell environment:

1. Type the “boot” under uBoot Shell environment as below then system will process booting procedure.

```
Hit any key to stop autoboot: 0
MP30AR0#
MP30AR0#
MP30AR0# boot
SATA1 link 0 timeout.
No drive connected
SATA1 link 1 timeout.
No drive connected
AHCI1 0001.0300 32 slots 2 ports 6 Gbps 0x3 impl SATA mode
flags: 64bit ncq pm only pmp fbss pio slum part ccc
SATA2 link 0 timeout.
No drive connected
SATA2 link 1 timeout.
No drive connected
```

2.4 How to input LAN MAC address to onboard LAN controller.

Follow the instruction below for input LAN MAC address of onboard LAN controller:

1. Please follow “1.5 How to entry uBoot shell environment” to entry uBoot shell environment.
2. Type “eth_addr <1st Mac Address> <LAN Port Number> ” (ex. eth_addr fc:aa:14:26:8d:a0 4) under uBoot shell environment to input LAN MAC address.
3. Then type “printenv ethaddr eth1addr eth2addr eth3addr” to display all LAN MAC address of onboard lan.
4. Type “saveenv” to backup LAN MAC address to SPI ROM.

```
MP30AR0#  
MP30AR0# eth_addr fc:aa:14:26:8d:a0 4  
MP30AR0# printenv ethaddr eth1addr eth2addr eth3addr  
ethaddr=fc:aa:14:26:8d:a0  
eth1addr=fc:aa:14:26:8d:a1  
eth2addr=fc:aa:14:26:8d:a2  
eth3addr=fc:aa:14:26:8d:a3  
MP30AR0# saveenv  
Saving Environment to SPI Flash...  
SF: Detected MX25L25635F with page size 64 KiB, total 32 MiB  
.....  
Erasing SPI flash...  
SF: erased 262144 bytes @ 0xfd0000  
..SF: Macronix: Successfully erased 262144 bytes @ 0xfd0000  
Writing to SPI flash...  
SF: Macronix: Successfully programmed 32768 bytes @ 0xfd0000  
.....  
SF: Macronix: Successfully programmed 229376 bytes @ 0xfd8000  
done  
MP30AR0#
```

2.5 How to restore LAN MAC address to onboard LAN controller.

Follow the instruction below for restore all LAN MAC address of onboard LAN controller:

1. Please follow “1.5 How to entry uBoot shell environment” to entry uBoot shell environment.
2. Type “Run load_env_default” under uBoot shell environment to restore LAN MAC address for all onboard LAN controller.

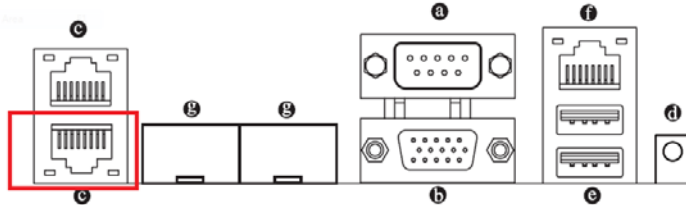
```
MP30AR0H
MP30AR0H run load env default
filesize=74
4004000000: 65 74 68 31 61 64 64 72 3d 30 30 3a 30 32 3a 37 eth1addr=00:02:7
4004000010: 34 3a 30 32 3a 30 31 3a 30 31 0a 65 74 68 32 61 4:02:01:01.eth2a
4004000020: 64 64 72 3d 30 30 3a 30 32 3a 37 34 3a 30 32 3a ddr=00:02:74:02:
4004000030: 30 31 3a 30 32 0a 65 74 68 33 61 64 64 72 3d 30 01:02.eth3addr=0
## Resetting to default environment
## Warning: defaulting to text format
ethaddr=00:02:74:02:01:00
eth1addr=00:02:74:02:01:01
eth2addr=00:02:74:02:01:02
eth3addr=00:02:74:02:01:03
Saving Environment to SPI Flash...
SF: Detected MX25L25635F with page size 64 KiB, total 32 MiB
.....
Erasing SPI flash...
SF: erased 262144 bytes @ 0xfd0000
..SF: Macronix: Successfully erased 262144 bytes @ 0xfd0000
Writing to SPI flash...
SF: Macronix: Successfully programmed 32768 bytes @ 0xfd0000
.....
SF: Macronix: Successfully programmed 229376 bytes @ 0xfd8000
done
resetting ...
cold reset ...
```

2.6 How to install IPMI package under Ubuntu OS

Follow the instruction below for install IPMI package under Ubuntu OS:

1. Please follow “1.14 Booting into Ubuntu OS with SD card” to boot into Ubuntu OS.
2. Connects the LAN cable to RJ-45 LAN Port. (In this case that we connect as below LAN port that marked by red box).

Back Panel Connectors



c RJ-45 LAN Ports (Gigabit Ethernet LAN Ports)

The Gigabit Ethernet LAN port provides Internet connection at up to 1 Gbps data rate. The following describes the states of the LAN port LEDs.

3. List all onboard LAN information use “ifconfig -a”

```
COM4 - PuTTY
ubuntu@arm64:~$ sudo ifconfig -a
[sudo] password for ubuntu:
bond0    Link encap:Ethernet  HWaddr fe:54:fe:c0:68:eb
         BROADCAST MASTER MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:0
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

dummy0   Link encap:Ethernet  HWaddr ea:44:ce:2f:77:fe
         BROADCAST NOARP  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:0
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

eth0     Link encap:Ethernet  HWaddr fc:aa:14:e4:97:d9
         inet addr:192.168.1.2  Bcast:192.168.1.255  Mask:255.255.255.0
         inet6 addr: fe80::feaa:14ff:fee4:97d9/64 Scope:Link
         UP BROADCAST MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:6 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:508 (508.0 B)

eth13    Link encap:Ethernet  HWaddr fc:aa:14:e4:97:dc
         BROADCAST MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

eth14    Link encap:Ethernet  HWaddr fc:aa:14:e4:97:da
         BROADCAST MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

eth16    Link encap:Ethernet  HWaddr fc:aa:14:e4:97:db
         BROADCAST MULTICAST  MTU:1500  Metric:1
         RX packets:0 errors:0 dropped:0 overruns:0 frame:0
         TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:1000
         RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo       Link encap:Local Loopback
         inet addr:127.0.0.1  Mask:255.0.0.0
         inet6 addr: ::1/128 Scope:Host
         UP LOOPBACK RUNNING  MTU:65536  Metric:1
         RX packets:8 errors:0 dropped:0 overruns:0 frame:0
         TX packets:8 errors:0 dropped:0 overruns:0 carrier:0
         collisions:0 txqueuelen:0
```

4. Enabled DHCP service to get DHCP IP address as below:
 - I. Enabled eth14 use “sudo ifconfig eth14 up”.
 - II. Enabled DHCP service for eth14 use “sudo dhclient eth14”.
 - III. Used “ifconfig” to confirm result as below


```
ubuntu@arm64:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr fc:aa:14:e4:97:d9
          inet addr:192.168.1.2  Bcast:192.168.1.255  Mask:255.255.255.0
          inet6 addr: fe80::feaa:14ff:fee4:97d9/64 Scope:Link
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0  errors:0  dropped:0  overruns:0  frame:0
          TX packets:6  errors:0  dropped:0  overruns:0  carrier:0
          collisions:0  txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:508 (508.0 B)

eth14     Link encap:Ethernet  HWaddr fc:aa:14:e4:97:da
          inet addr:10.1.27.107  Bcast:10.1.27.255  Mask:255.255.255.0
          inet6 addr: fe80::feaa:14ff:fee4:97da/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:742  errors:0  dropped:0  overruns:0  frame:0
          TX packets:10  errors:0  dropped:0  overruns:0  carrier:0
          collisions:0  txqueuelen:1000
          RX bytes:83264 (83.2 KB)  TX bytes:1050 (1.0 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:8  errors:0  dropped:0  overruns:0  frame:0
          TX packets:8  errors:0  dropped:0  overruns:0  carrier:0
          collisions:0  txqueuelen:0
          RX bytes:728 (728.0 B)  TX bytes:728 (728.0 B)

ubuntu@arm64:~$
```

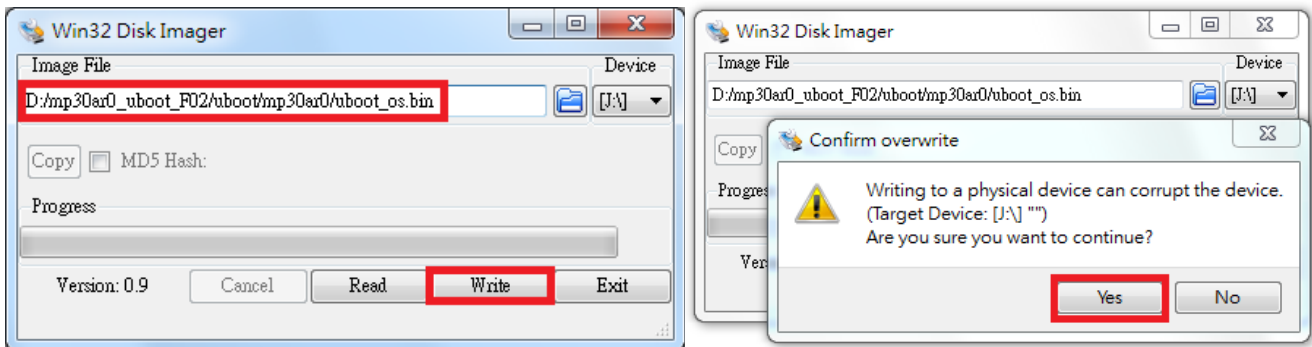
5. Download lspci tools kit use “sudo apt-get install freeipmi-tools”
6. Type “bmc-info --no-probing --driver-type=SSIF --driver-address=0x10 --driver-device=/dev/i2c-1 --get-device-id --debug” to get device id from IPMI.

```
[ 2h] = ipmi_version_major[ 4b]
[ 0h] = ipmi_version_minor[ 4b]
[ 1h] = additional_device_support.sensor_device[ 1b]
[ 1h] = additional_device_support.sdr_repository_device[ 1b]
[ 1h] = additional_device_support.sel_device[ 1b]
[ 1h] = additional_device_support.fru_inventory_device[ 1b]
[ 1h] = additional_device_support.ipmb_event_receiver[ 1b]
[ 0h] = additional_device_support.ipmb_event_generator[ 1b]
[ 1h] = additional_device_support.bridge[ 1b]
[ 1h] = additional_device_support.chassis_device[ 1b]
[ 0h] = manufacturer_id.id[20b]
[ 0h] = manufacturer_id.reserved1[ 4b]
[ 0h] = product_id[16b]
[ 0h] = auxiliary_firmware_revision_information[32b]
Device ID : 32
Device Revision : 1
Device SDRs : unsupported
Firmware Revision : 1.35
Device Available : yes (normal operation)
IPMI Version : 2.0
Sensor Device : supported
SDR Repository Device : supported
SEL Device : supported
FRU Inventory Device : supported
IPMB Event Receiver : supported
IPMB Event Generator : unsupported
Bridge : supported
Chassis Device : supported
Manufacturer ID : Reserved (0)
Product ID : 0
Auxiliary Firmware Revision Information : 00000000h
```

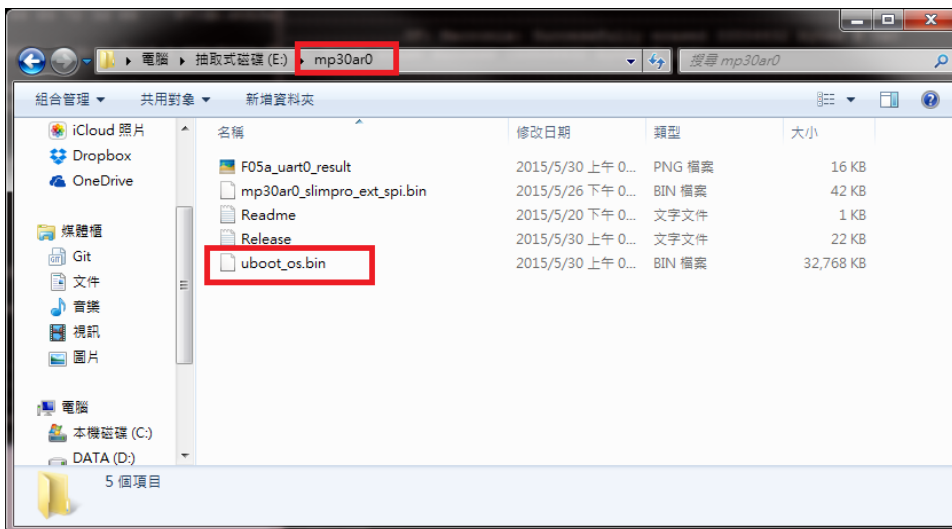
2.7 How to recovery U-Boot via SD card

Follow the instruction below for recovery uBoot via SD card:

1. Prepare a SD card (SDHC type)
2. Download the latest version uBoot image (uBoot_os.bin) from the weblink:
<http://b2b.gigabyte.com/products/product-page.aspx?pid=5423#bios>
3. Use Quick format to empty and unlock the Target storage (SD card or USB memory stick)
4. Run the Win32 Disk Imager application and mark sure the Target Device is correct (SD card).
5. Load the uBoot image (uBoot_os.bin) then click the “Write” Button.
6. Then click the “Yes” when Confirm overwrite Box appear.

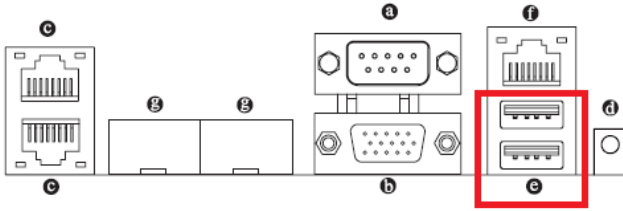


7. Ejection the Target storage after finish the uBoot image recovery.
8. Prepare a USB flash (FAT32 Format)
9. Created a “mp30ar0” directory and put the latest version firmware image (uboot_os.bin) in here.



10. Inserted the USB flash into USB port as below.

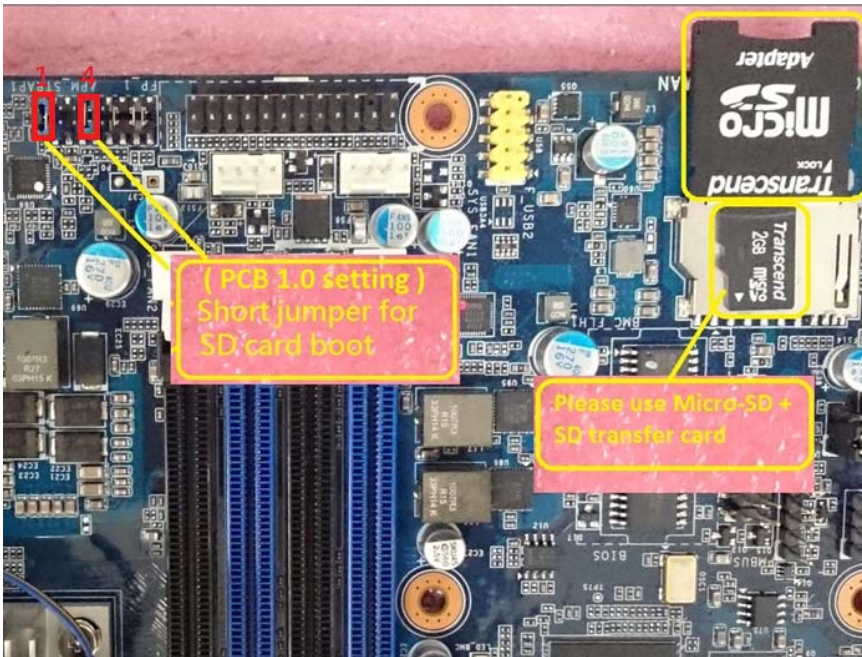
Back Panel Connectors



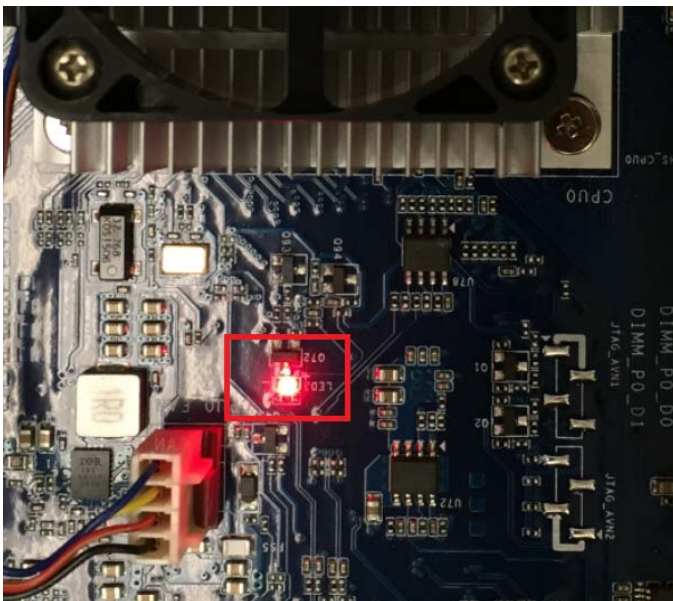
e USB 2.0 Port

The USB port supports the USB 2.0 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

11. Inserted the SD card into SD card socket and short the jumper 1&4 of APM_STRAP1” pin head as below to entry SD card boot mode.



12. Please follow “1.3 How to Power on the system” to power on the mother board.
13. The LED3 will blink if no SD card Present.



14. Please follow “1.5 How to entry uBoot shell environment” to entry uBoot shell environment.

15. Type “run flash_uboot_os_img” to start update uBoot firmware and the system will restart after firmware update finish.

```
MP30AR0#
MP30AR0# run flash_uboot_os_img
filesize=71
4004000000: 65 74 68 31 61 64 64 72 3d 66 63 3a 61 61 3a 31 eth1addr=fc:aa:1
4004000010: 34 3a 65 34 3a 39 37 3a 64 61 0a 65 74 68 32 61 4:e4:97:da.eth2a
4004000020: 64 64 72 3d 66 63 3a 61 61 3a 31 34 3a 65 34 3a ddr=fc:aa:14:e4:
4004000030: 39 37 3a 64 62 0a 65 74 68 33 61 64 64 72 3d 66 97:db.eth3addr=f
(Re)start USB...
USB0: scanning bus 0 for devices... XHCI: WARN: Didn't find a matching TT
3 USB Device(s) found
USB1: scanning bus 1 for devices... 3 USB Device(s) found
scanning usb for storage devices... XHCI: ep 0x1 - rounding interval to 1
microframes
1 Storage Device(s) found
XHCI: ep 0x1 - rounding interval to 128 microframes
XHCI-ERR: xhci_submit_async_int !
Register 1 keyboards
reading mp30ar0/uboot_os.bin
33554432 bytes read in 11218 ms (2.9 MiB/s)
filesize=2000000
SF: Detected MX25L25635F with page size 64 KiB, total 32 MiB, mapped at 00000000
0000ffff
SF: 32768 KiB MX25L25635F at 0:0 is now current device

SF: erased 33554432 bytes @ 0x0
.....
.....
.....SF: Macronix: Successfully erased 33554432 bytes @ 0x0
SF: flash erase success (33554432 bytes @ 0x0)
```

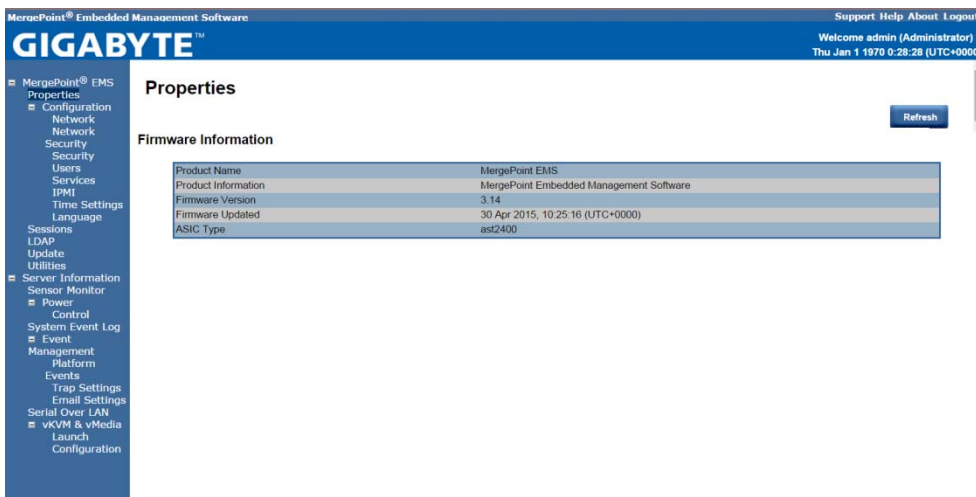
2.8 How to use Easy BIOS to update onboard firmware

Follow the instruction below for uBoot update via Management LAN (Out of Band).

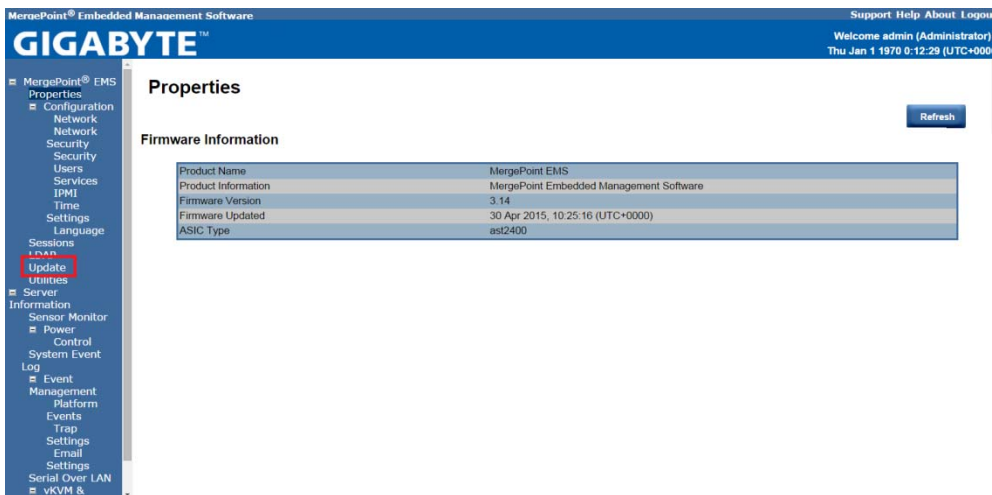
1. Download the uBoot image (RBU format) from the weblink:
<http://b2b.gigabyte.com/products/product-page.aspx?pid=5423#bios>
2. Please follow “2.2 How to use Gigabyte utility to scan IP address of Management LAN” to get DHCP IP Address for Management LAN port.
3. Open a web browser and type in your identified IP(DHCP IP address of Management Lan). The IP address can be found using your DHCP server.



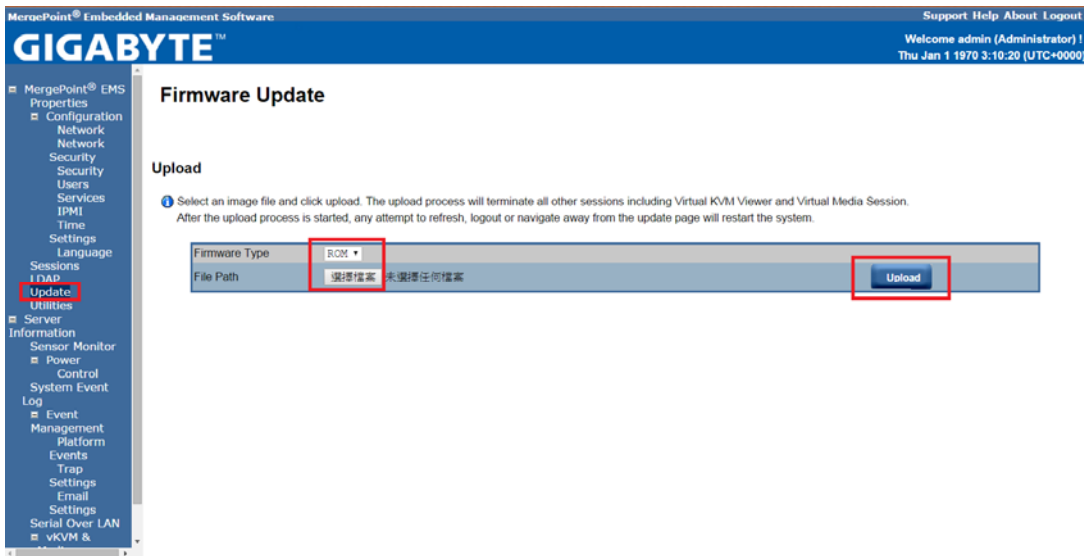
4. A dialog box prompts you to enter Username and Password.
5. Enter the following values:
Username: **admin**
Password: **password**
6. Then you can find some information as below.



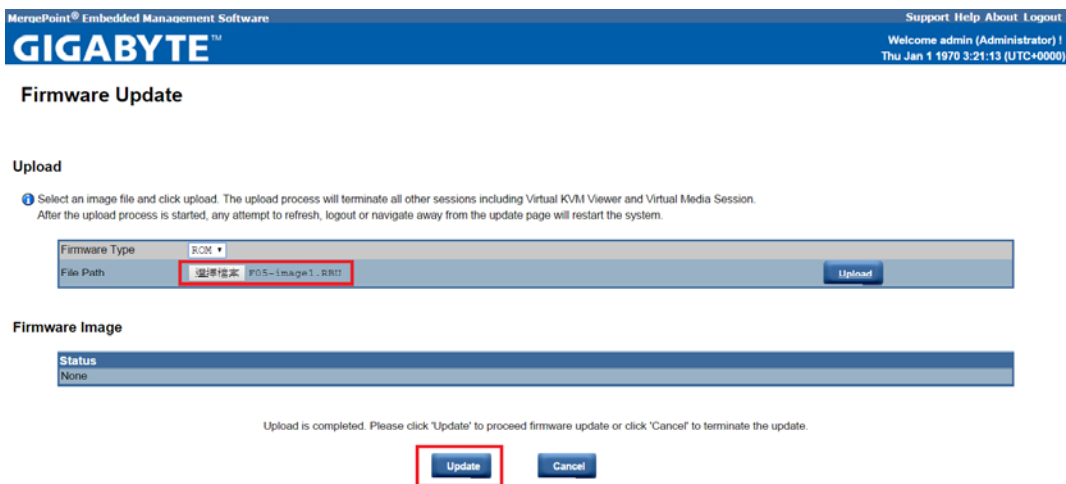
7. Click the “Update” of Merge point Embedded Management Software.



8. Select the firmware Type as “ROM” and select first uBoot firmware image file (RBU format) then click the “Upload” to upload uBoot firmware image. (There are two RBU image need to update)



9. Click the “Update” button to update 1st uBoot image.



10. Wait for the status become to “100% Completed” and display “ROM Part1 firmware image has been updated successfully,

please upload ROM Part2 and update” message.

11. Select the second uBoot firmware image file (RBU format) then click the “Upload” to upload uBoot firmware image. (There are two RBU image need to update)

MergePoint® Embedded Management Software Support Help About Logout

GIGABYTE™ Welcome admin (Administrator) !
Thu Jan 1 1970 3:30:32 (UTC+0000)

Firmware Update

Upload

1 Select an image file and click upload. The upload process will terminate all other sessions including Virtual KVM Viewer and Virtual Media Session. After the upload process is started, any attempt to refresh, logout or navigate away from the update page will restart the system.

Firmware Type	
File Path	選擇檔案 F05-image2.RBU Upload

Firmware Image

Status
100% Completed

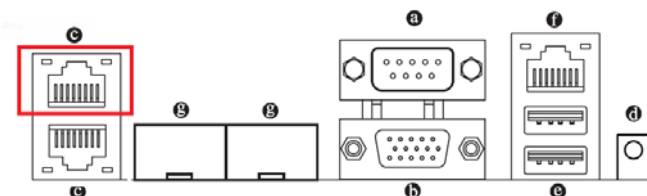
ROM Part1 firmware image has been updated successfully. Please upload ROM Part2 and update.

2.9 How to set-up Tftp Server.

Follow the instruction below for Tftp Server setting.

1. Please install Tftp application to your PC or notebook with Windows 7 64bits OS.
2. Connect the LAN cable from your PC or Notebook to RJ45 LAN Port. (In this case that we connect as below LAN port that marked by red box).

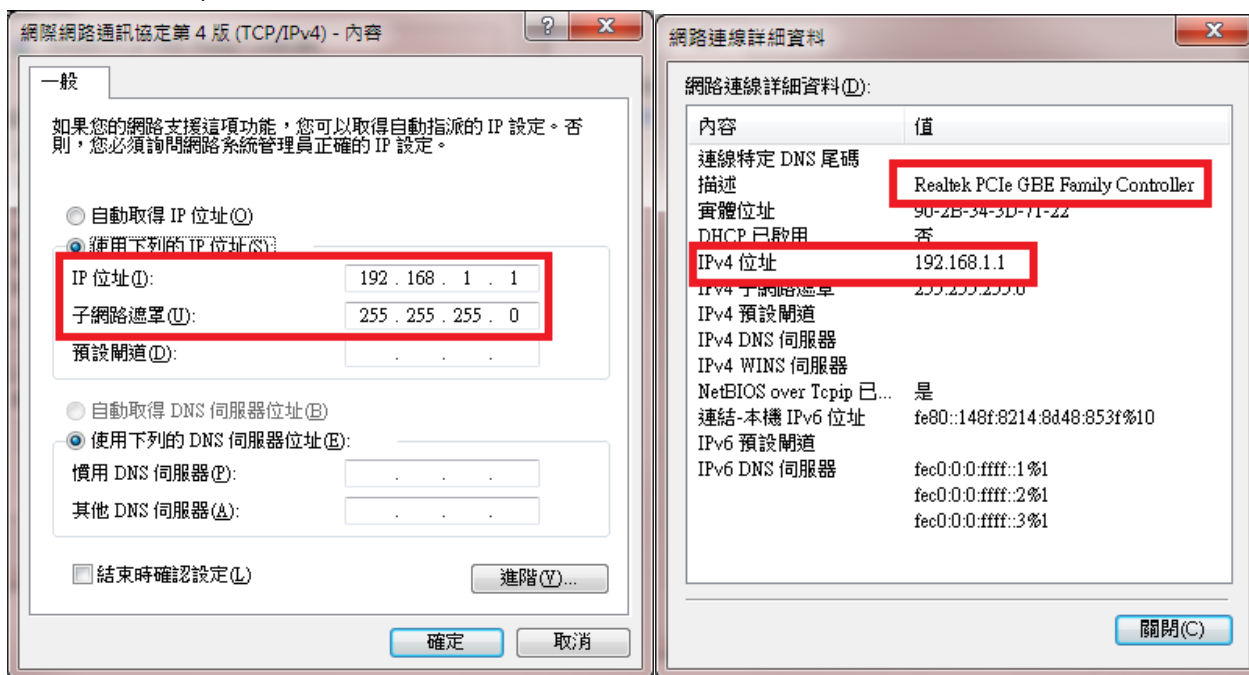
Back Panel Connectors



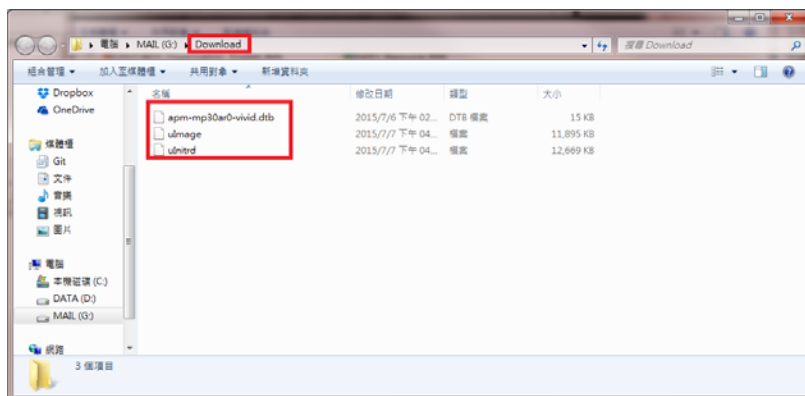
c RJ-45 LAN Ports (Gigabit Ethernet LAN Ports)

The Gigabit Ethernet LAN port provides Internet connection at up to 1 Gbps data rate. The following describes the states of the LAN port LEDs.

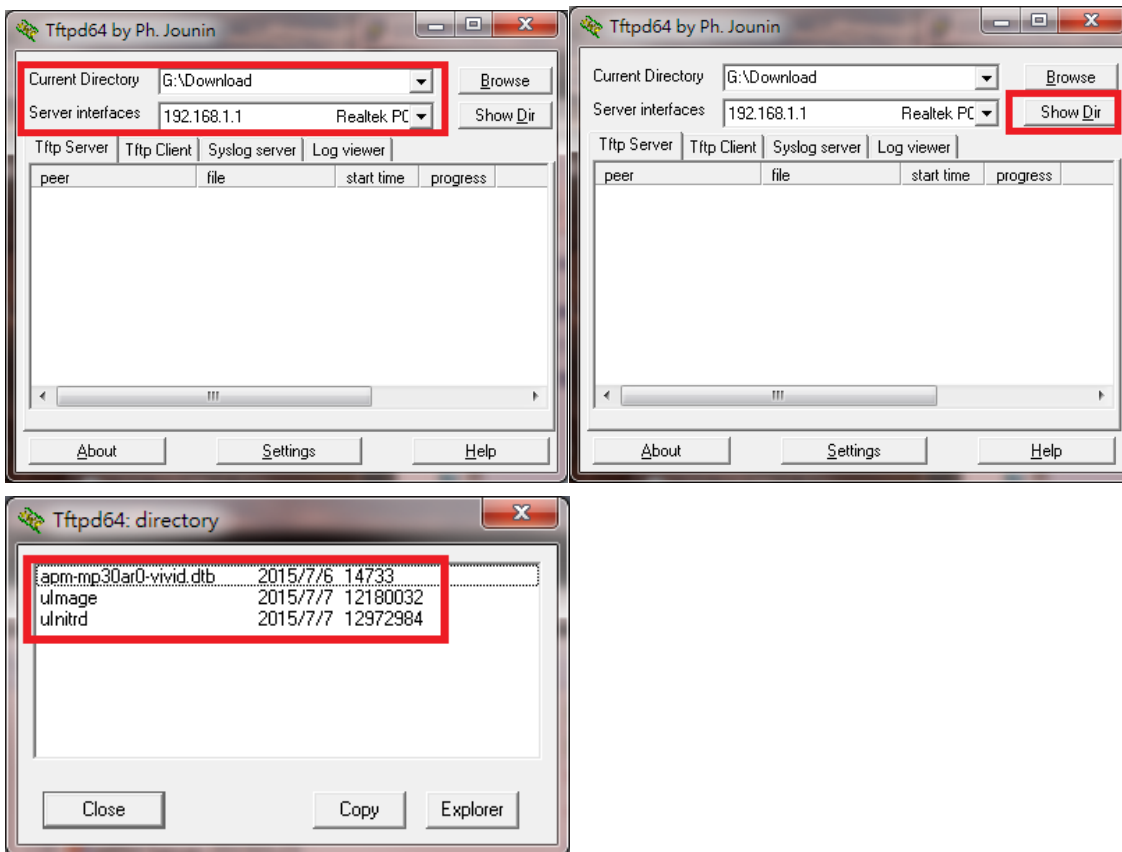
3. Set Static IP address as “192.168.1.1” to your LAN controller.
4. For this example that we set the IP address of “Realtek PCIe LAN” is “192.168.1.1”



5. Create a Directory and put some file in here as below.



6. Set the “Current Directory” and Server interface as below:



7. Please follow “1.5 How to entry uBoot shell environment” to entry uBoot shell environment.

8. Type “ping 192.168.1.1” to know the Tftp is alive or not.

```

SF: Detected MX25L25635F with page size 64 KiB, total 32 MiB

MMC: X-Gene SD/SDIO/eMMC: 0
PCIE0: (RC) link down
PCIE3: (RC) link down
Video: No ASPEED VGA card found!
In: serial
Out: serial
Err: serial
CPUs: 11111111
Net: eth0
USB0: scanning bus 0 for devices... XHCI: WARN: Didn't find a matching TT
3 USB Device(s) found
USB1: scanning bus 1 for devices... 2 USB Device(s) found
scanning usb for storage devices... 0 Storage Device(s) found
XHCI: ep 0x1 - rounding interval to 128 microframes
XHCI-ERR: xhci_submit_async_int !
Register 1 keyboards
Hit any key to stop autoboot: 0
MP30AR0# ping 192.168.1.1
Port0 is down
Using eth0 device
host 192.168.1.1 is alive
MP3UARU#

```

APPENDIX1 Add-in card support list

Not ready yet.