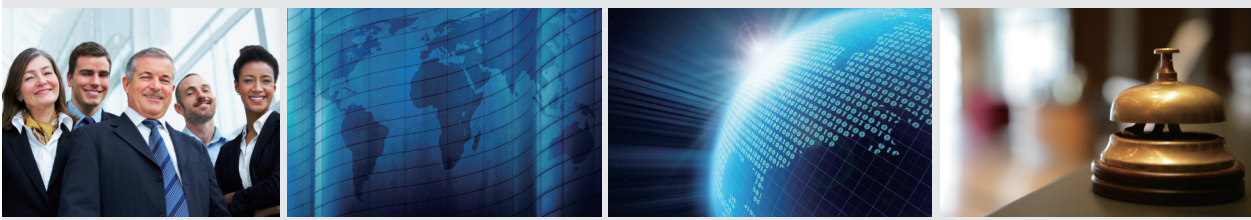


Network Application Platforms

Hardware platforms for next generation networking infrastructure



MR-301

User's Manual

Publication date:2010-11-19

>>

Overview

Icon Descriptions

The icons are used in the manual to serve as an indication of interest topics or important messages. Below is a description of these icons:



NOTE: This check mark indicates that there is a note of interest and is something that you should pay special attention to while using the product.



WARNING: This exclamation point indicates that there is a caution or warning and it is something that could damage your property or product.

Online Resources

The listed websites are links to the on-line product information and technical support.

Resource	Website
Lanner	http://www.lannerinc.com
Product Resources	http://assist.lannerinc.com
RMA	http://eRMA.lannerinc.com

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Acknowledgement

Intel, Pentium and Celeron are registered trademarks of Intel Corp.

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Compliances

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



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Chapter 1: Introduction

Based on the Marvell Shiva SOC 88F6000 family processors (more specifically the Marvell Shiva SOC 88F6281), the MR-301 empowers family or small business networking equipment, enabling the convenience of online entertainment and file sharing with high bandwidth Internet access.

Some key features of the MR-301 are summarized below:

- 64 MB NAND Flash
- Powered by Marvell 88F6281 Processor at 1.2G
- 512MB DDR II 800 MHz memory on board
- USB 2.0 connector
- One Mini -PCIe socket for wireless 802.11a/b/g/n adapters
- Support five GbE Ethernet ports via the Marvell 88E6161 GbE PHY; one of them can be configured as the WAN port
- Add-on ADSL dial-up service via an optional installation of ADSL modem through the Marvell 88E1116 controller.

System Specification

FEATURE	DESCRIPTION	
Form Factor	Desktop	
Platform	Processor	Marvell Shiva SOC 88F6281 at 1.2G
	Flash	Support 64MB NAND Flash (up to 1Gb)
System Memory	Technology	DDR2 800 MHz
	Default Memory	512MB
	Max	1GB
OS Support	Linux	
Storage	HDD Bay(s)	2.5" x 1
	Storage Interface	Serial-ATA x 1
I/O Interface	Console	RJ45 x 1
	USB 2.0	USB x 1
Networking	Ethernet Ports	5 GbE ports
	Controller	Marvell LinkStreet 88E6161
	Expansion	Optional via 1 x GbE port from Marvell 88E1116 for communication with internal devices
Cooling	Processor	CPU passive heatsink
	System	With system fan: MR-301A Fanless: MR301B
Expansion	Mini PCIe	1
	LCD Module	No
Miscellaneous	Watchdog	Yes
	Internal RTC with Li Battery	Yes
Environmental Parameters	Temperature, ambient operating / storage	0°C ~40°C / -20°C~70°C
	Humidity (RH), ambient operating and non-operating	5 ~ 95%, non condensing
Power	Type / Watts	60W/24W
	System input	12V, 5A/12V, 2A
Physical Dimensions	Dimensions (WxHxD)	210 x 44 x 190 mm
	Weight	1.2KG
Approvals & Compliance	CE Emission, FCC Class A, RoHS	
Ordering Information	MR-301A	Marvell SOC 1.2GHz, 512MB DDR2, 64MB NAND Flash with system fan
	MR-301B	Marvell SOC 1.2GHz, 512MB DDR2, 64MB NAND Flash, fanless



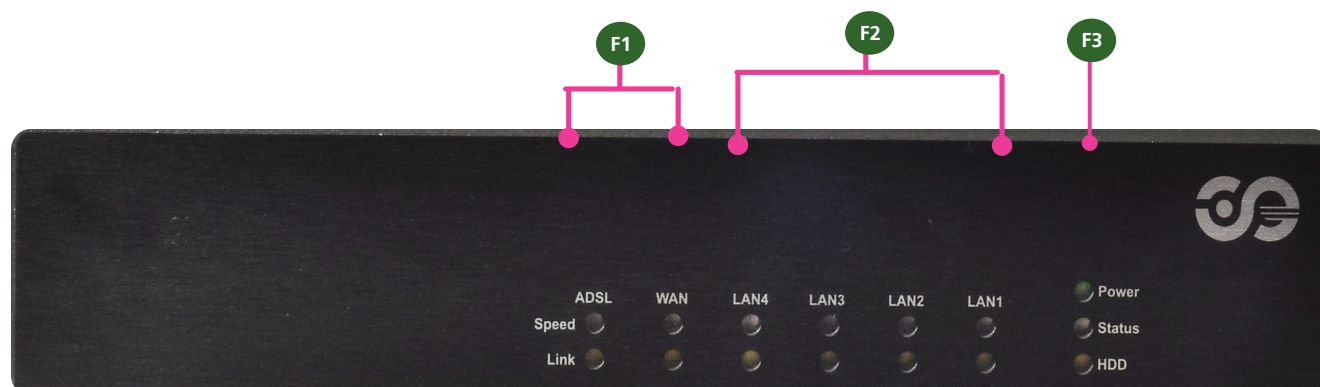
Package Contents

Your package contains the following items:

- MR-301 Network Security Platform
- Power cable
- 1 crossover Ethernet cable (1.8 meters)
- 1 straight-through Ethernet cable (1.8 meters)
- 1 RJ-45 to DB-9 female console cable
- Serial-ATA hard drive cable



Front Panel Features



F1 LED Indicators for ADSL and WAN

The ADSL LED indicates the connection status of the ADSL services, whereas the WAN LED indicates the connection status of the Internet service.

Speed LED (Green/Amber):

LED	Behavior	Interpretation
LINK/ACT (Yellow)	On/Flashing	The port is linking.
	Off	The port is not linking.
SPEED (Green/Amber)	Amber	The connection speed is 1000Mbps.
	Green	The connection speed is 100Mbps.
	Off	The connection speed is 10Mbps.

F2 LED Indicators for 4 LANs

The LAN4/LAN3/LAN2/LAN1 LED indicates the connection between the port and the next piece of network equipment.

LED	Behavior	Interpretation
LINK/ACT (Yellow)	On/Flashing	The port is linking.
	Off	The port is not linking.
SPEED (Green/Amber)	Amber	The connection speed is 1000Mbps.
	Green	The connection speed is 100Mbps.
	Off	The connection speed is 10Mbps.

F3 Power/Status/HDD LED

Power LED (Green):

Green indicates that the system is powered on.

Status LED (Green/amber):

This LED is programmable. You could program it to display the operating status with the behavior like the following:

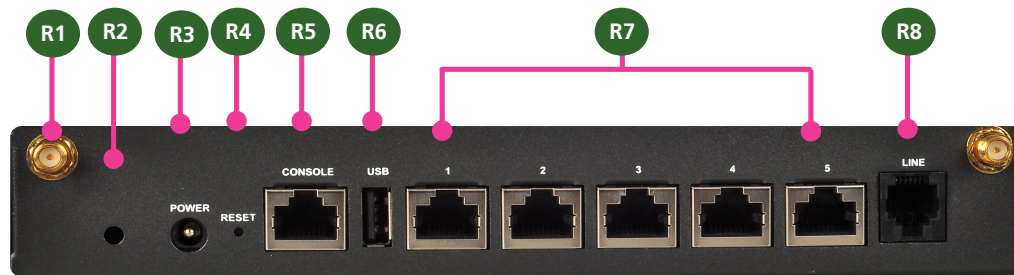
If the LED is green, it indicates that the system's operational state is normal. If it is amber, it indicates that the system is malfunctioning. For sample code, refer to the Drive and Manual CD.

HDD LED (Yellow):

It is an LED indicator for the hard disk. If it is flashing, it indicates data access activities. Otherwise, it remains off.



Rear Panel Features



R1 Antenna socket for wireless module

R2 Socket for cable clip

R3 DC-in Power Adapter Socket

The system requires a 12V/5A power input.

R4 Reset Button

A Reset button is provided to reset the system without turning off the power.

R5 **Console Port**

By using suitable rollover cable (console cable), you can connect to a computer terminal for diagnostic or configuration purpose. Default terminal configuration parameters: 115200 baud, 8 data bits, no parity, 1 stop bit, and no flow control. This port is assigned as COM1 whereas the internal serial pin header (J6) is assigned as COM2.

R6 **USB 2.0 Port**

It connects to any USB devices, for example, a flash drive.

R7 **5 10/100/1000Mbps Ethernet Ports⁽¹⁾**

These five Gigabit Ethernet ports are provided by Marvell 88E6161 GbE PHY through the SGMII interface.

R8 **Telephone Line Port ⁽²⁾**

This port can be connected to the local telephone system with DSL services which is enabled by an ADSL modem connected to the system via the 88E1116 controller.



Note:

1. One of the Ethernet port can be configured as the WAN port for the Internet service, separating it from the other LAN ports for better network management and security.
2. The telephone line port is available on model MR-310A only.



Chapter 2: Hardware Setup

Preparing the Hardware Installation

To access some components and perform certain service procedures, you must perform the following procedures first.



WARNING: To reduce the risk of personal injury, electric shock, or damage to the equipment, detach the power cord to remove power from the server. The Power On/Standby button (if there is one) does not completely shut off system power. Portions of the power supply and some internal circuitry remain active until AC power is removed.

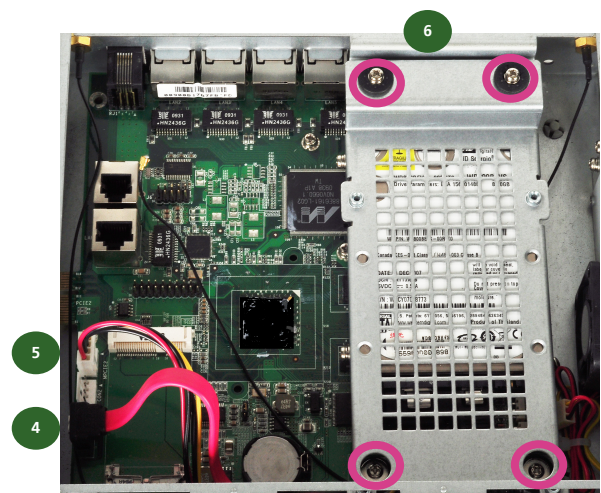
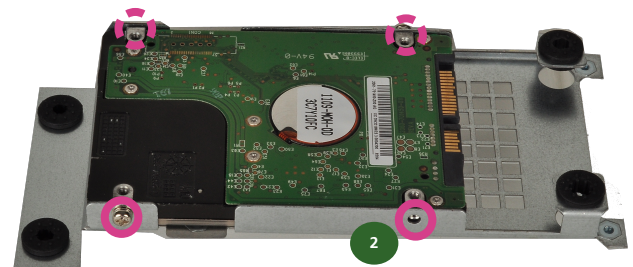
1. Power off the MR-301 and remove the power cord from the system.
2. Unscrew the 2 threaded screws from the rear side and 1 screw from each of the lateral side of the MR-301 system.
3. Slide the cover backwards and lift to open the cover.



Installing the Hard Disk

The system can accommodate one 2.5" Serial-ATA disks. Follow these steps to install a hard disk into the MR-301:

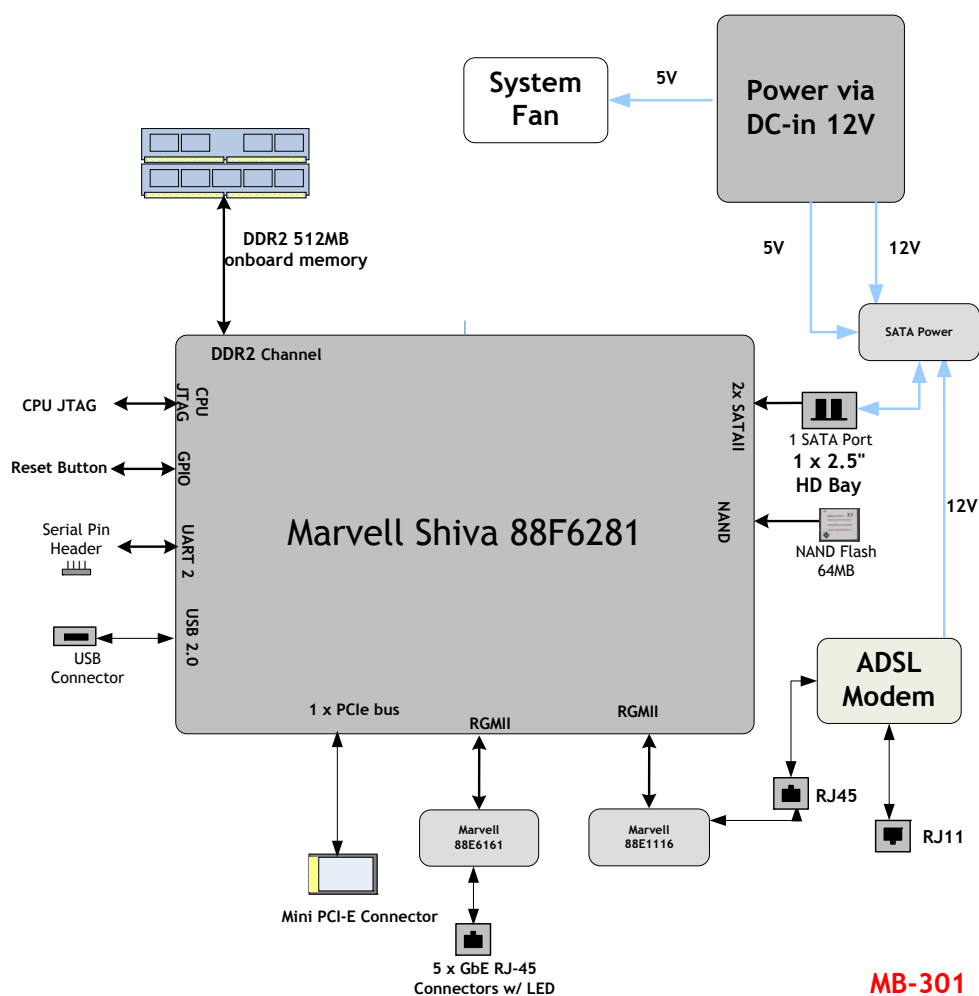
1. Place hard disk on the hard disk tray and align the holes of the hard disk with the mounting holes of the tray.
2. Screw 4 mounting screws through the hard disk on side the hard disk tray.
3. Connect the Serial-ATA power and drive cables to the hard disk's power and drive connectors respectively.
4. Plug the Serial-ATA data cable to the Serial-ATA Connector on the main board.
5. Plug the Serial-ATA power cable to the Serial-ATA Power Connector on the main board.
6. Put the hard disk tray with the installed hard disk back and fasten it to the system with the mounting screws.



Chapter 3: Motherboard Information

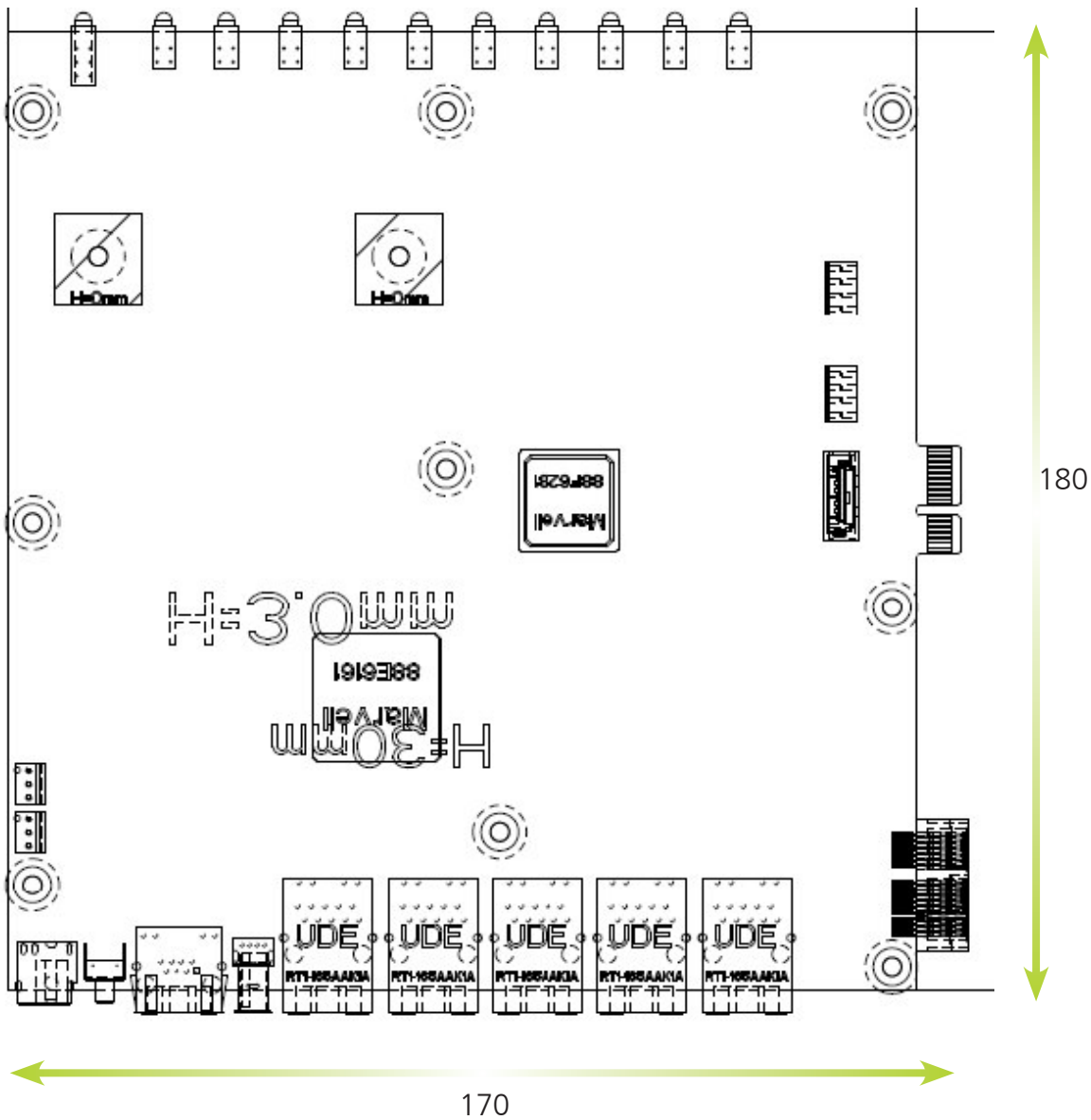
Block Diagram

The block diagram depicts the relationships among the interfaces or modules on the motherboard. Please refer to the following figure for your motherboard's layout design.



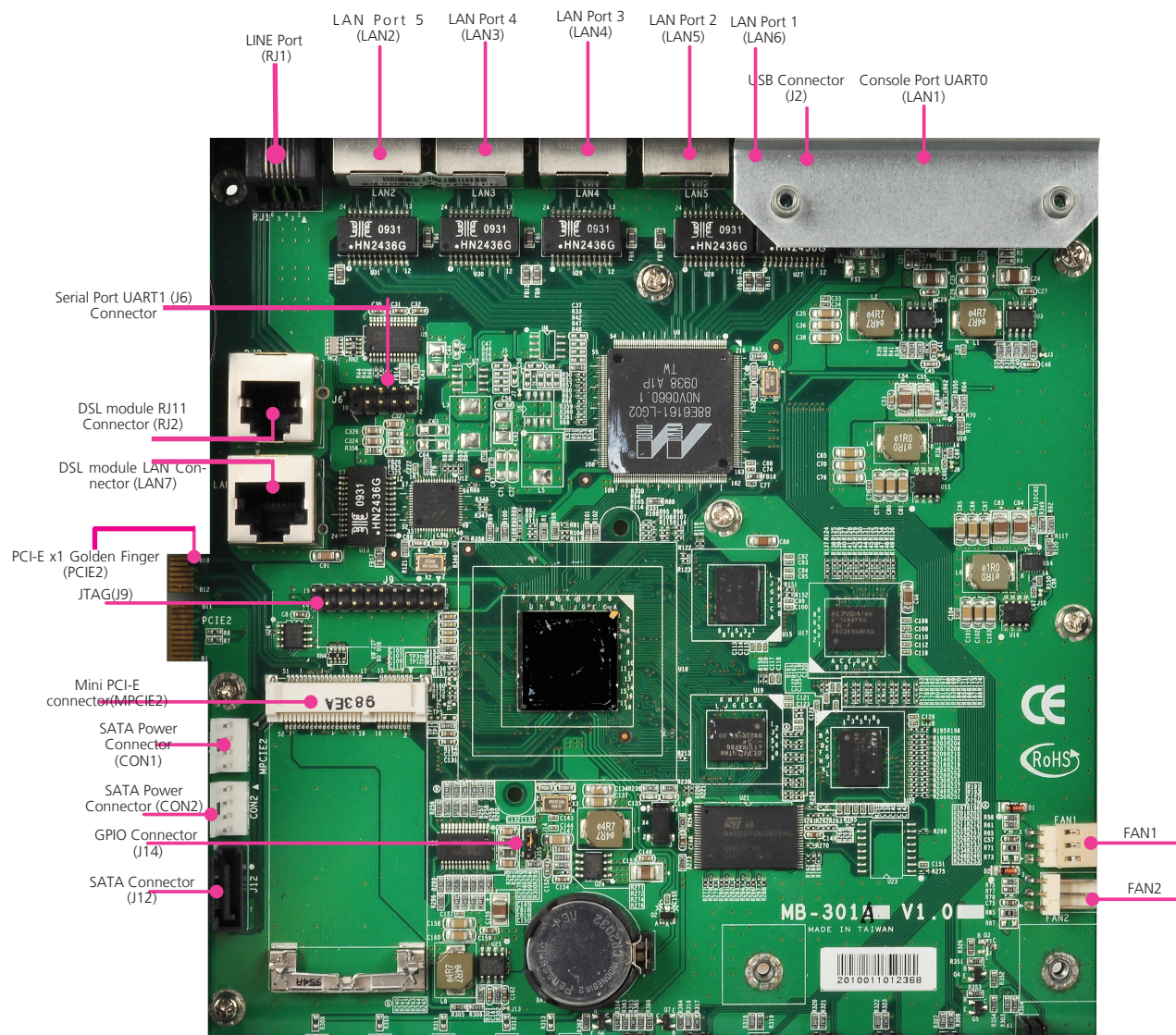
Board Dimension

The following diagram shows the physical dimension of the PCB board. (unit: mm)



Motherboard Layout

The motherboard layout shows the connectors and jumpers on the board. Refer to the following picture as a reference of the pin assignments and the internal connectors.

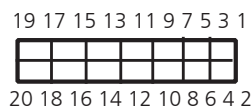


Chapter 3

Motherboard Information

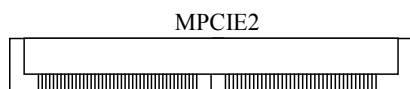
Jumper Settings

88F6281 JTAG Connector (J9): The Jtag is a debug port provided as a means for testing the main board and looking for possibility of field faults. It can also be used for flash writing.



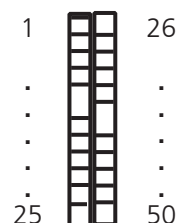
PIN NO.	FUNCTION	PIN NO.	FUNCTION
1	V_3.3	2	V_3.3
3	Jt_Reset#	4	GND
5	Jt_Tdi	6	GND
7	Jt_Tms_CPU	8	GND
9	Jt_Clk	10	GND
11	Jt_Clk	12	GND
13	Jt_Tdo	14	GND
15	Jt_Srst#	16	GND
17	NC	18	GND
19	NC	20	GND

Mini-PCle Connector (MPCIE2): The 52-pin Mini-PCle slot enables a Mini-PCle expansion module to be connected to the board. For example, a WiMAX/WiFi module.



PIN NO.	FUNCTION	PIN NO.	FUNCTION
1	WAKE1-	2	V_3.3
3	NC	4	GND
5	NC	6	V_1.5
7	CLKREQ-	8	NC
9	GND	10	NC
11	Clk_MiniPex_n	12	NC
13	Clk_MiniPex_p	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	NC
21	GND	22	Rst#_Sys
23	MiniP_R_n	24	V_3.3
25	MiniP_R_p	26	GND
27	GND	28	V_1.5
29	GND	30	MPE_SMCLK
31	MiniP_T_n	32	MPE_SMDTA
33	MiniP_T_p	34	GND
35	GND	36	NC
37	NC	38	NC
39	NC	40	GND
41	NC	42	NC
43	NC	44	NC
45	NC	46	NC
47	NC	48	V_1.5
49	NC	50	GND
51	NC	52	V_3.3

PCI-E X 1 Golden Finger Connector (PCIE2)



Pin No.	Function	Pin No.	Function
A1	NC	B1	V_12
A2	V_12	B2	V_12
A3	V_12	B3	V_12
A4	GND	B4	GND
A5	NC	B5	NC
A6	NC	B6	NC
A7	GND	B7	GND
A8	GND	B8	V_3.3
A9	V_3.3	B9	NC
A10	V_3.3	B10	V_3.3
A11	Rst#_Sys	B11	NC
A12	GND	B12	NC
A13	Clk_Pex_p	B13	GND
A14	Clk_Pex_n	B14	PciE_T_p
A15	GND	B15	PciE_T_n
A16	PciE_R_p	B16	GND
A17	PciE_R_n	B17	NC
A18	GND	B18	GND

SATA Driver Connector (J12): It is for connecting a 2.5" SATA harddisk to be served as your system's storage. The system can support up to 1 disk of 2.5" in maximum.

Pin No.	Description
1	GND
2	Sata0_Tx_p
3	Sata0_Tx_n
4	GND
5	Sata0_Rx_n
6	Sata0_Rx_p
7	GND



Serial-ATA Power Connector (CON1, CON2): It is used for connecting the SATA power cord.

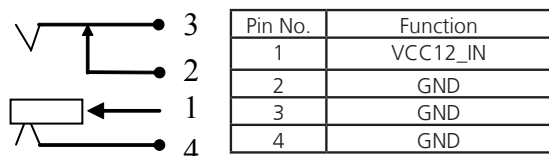
Pin No.	Description
1	V_12
2	GND
3	GND
4	V_5



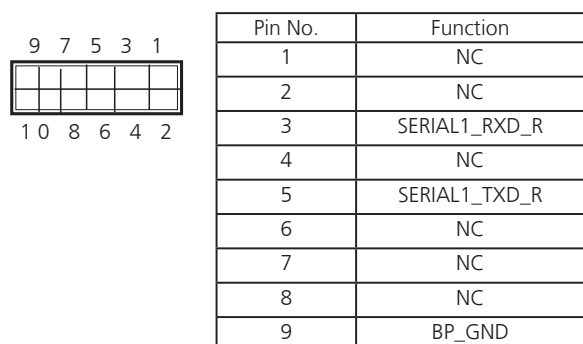
Chapter 3

Motherboard Information

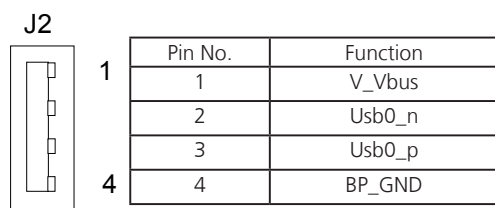
12V DC Power Jack (J1): It is used for connecting the power adaptor to the board.



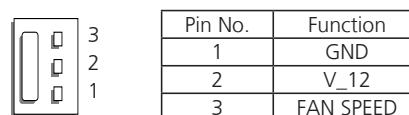
Intel Serial port UART1 Connector (J6): The 10-pin connector is for connecting RS-232 serial devices. This port is assigned as COM2 whereas the console port is assigned as COM1.



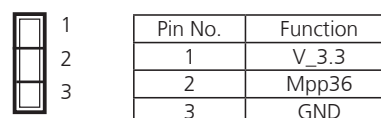
USB Port (J2): It is for connecting the USB devices. It complies with USB 2.0 and can support 480 Mbit/s Mbps transmission rate.



System FAN Connector(FAN1/FAN2): This 3-pin header is for connecting the system fan.

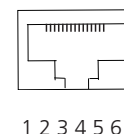


GPIO Pin Header (J14)



Telephone Port (RJ1 on the front panel to connecting to the telephone port , RJ2 on the internal connector): The front panel (RJ1) port is used to connect to the telephone line to your local telephone system with DSL services and. The internal RJ2 port is used to connect to the DSL module installed on the system.

Pin No.	Function
1	Tx_F
2	Tx
3	Tx_G
4	Rx_G
5	Rx
6	Rx_Fl





Appendix A: Terms and Conditions

Warranty Policy

1. All products are under warranty against defects in materials and workmanship for a period of one year from the date of purchase.
2. The buyer will bear the return freight charges for goods returned for repair within the warranty period; whereas the manufacturer will bear the after service freight charges for goods returned to the user.
3. The buyer will pay for repair (for replaced components plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.
4. If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service," RMA goods will be returned at customer's expense.
5. The following conditions are excluded from this warranty:
 - Improper or inadequate maintenance by the customer
 - Unauthorized modification, misuse, or reversed engineering of the product
 - Operation outside of the environmental specifications for the product..

RMA Service

Requesting a RMA#

6. To obtain a RMA number, simply fill out and fax the "RMA Request Form" to your supplier.
7. The customer is required to fill out the problem code as listed. If your problem is not among the codes listed, please write the symptom description in the remarks box.
8. Ship the defective unit(s) on freight prepaid terms. Use the original packing materials when possible.
9. Mark the RMA# clearly on the box.



Note: Customer is responsible for shipping damages resulting from inadequate/loose packing of the defective units. All RMA# are valid for 30 days only; RMA goods received after the effective RMA# period will be rejected.



Appendix A

Terms and Conditions

RMA Service Request Form

When requesting RMA service, please fill out the following form. Without this form enclosed, your RMA cannot be processed.

RMA No:		Reasons to Return: <input type="checkbox"/> Repair(Please include failure details) <input type="checkbox"/> Testing Purpose	
Company:		Contact Person:	
Phone No.		Purchased Date:	
Fax No.:		Applied Date:	
Return Shipping Address: _____			
Shipping by: <input type="checkbox"/> Air Freight <input type="checkbox"/> Sea <input type="checkbox"/> Express _____			
<input type="checkbox"/> Others: _____			
Item	Model Name	Serial Number	Configuration

Item	Problem Code	Failure Status

*Problem Code:

01: D.O.A.	07: BIOS Problem	13: SCSI	19: DIO
02: Second Time R.M.A.	08: Keyboard Controller Fail	14: LPT Port	20: Buzzer
03: CMOS Data Lost	09: Cache RMA Problem	15: PS2	21: Shut Down
04: FDC Fail	10: Memory Socket Bad	16: LAN	22: Panel Fail
05: HDC Fail	11: Hang Up Software	17: COM Port	23: CRT Fail
06: Bad Slot	12: Out Look Damage	18: Watchdog Timer	24: Others (Pls specify)

Request Party

Confirmed By Supplier

Authorized Signature / Date

Authorized Signature / Date

