

TQ 50 System Manual

version 7b



Certifications: 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 in which case the user will be required to correct the interference at his own expense. Testing was done with shielded cables. Therefore, in order to comply with the FCC regulations, you must use shielded cables with your installation. This product complies with EN55022 class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference - causing equipment standard entitled "Digital Apparatus", ICES-003 of the Department of Communications.

Europe: MANUFACTURER'S DECLARATION OF CONFORMITY

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There are various system models, so please record the model that you have ordered and in the event of need of support or RMA repair, please include the model number.

SAFETY INFORMATION

WARNING

Please insure that the system top cover has open space and not covered so that the system can properly cool. Don't cover the top, and don't run the system without the heatsink cover attached.

Do not expose system to rain or moisture, in order to prevent shock and fire hazard.

Never install system in wet locations or outdoors.

Do not open the case to avoid electrical shock or damaging the system. Refer to your nearest dealer for qualified personnel servicing.

Never touch un-insulated terminals or wire unless your power adaptor and display monitor are disconnected.

Locate system as close as possible to the socket for easy access or place the system in rear of table to avoid it being knocked off if a cable is accidentally pulled.

When using system, avoid using or installing the modem to the serial port during a storm or a lightning and avoid use during a lightning storm.

USB connectors are not supplied with Limited Power Sources so please avoid connection of improper or defective USB devices.

DO NOT ATTEMPT TO OPEN OR TO DISASSEMBLE THE CHASSIS (CASE) OF THIS PRODUCT. THE SYSTEM CAN BE DAMAGED BY IMPROPER OPENING OR INSTALL OF DISK. PLEASE CONTACT YOUR NEAREST DEALER FOR SERVICING FROM QUALIFIED TECHNICIAN FOR OPENING OR DISK OR FLASH INSTALL.

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UNPACKING YOUR SYSTEM

Please check the following items:

PACKING LIST FOR System SERIES

Item	Description	Q'ty
①	System	1
②	Max. 22-watts External Power Adaptor, Vin: 100~240VAC • 50/60Hz, 0.45A / Vout: +15VDC @ 1.5A max.	1

* Note: The accessories are subject to change without immediate notice.

CHECK BEFORE USE

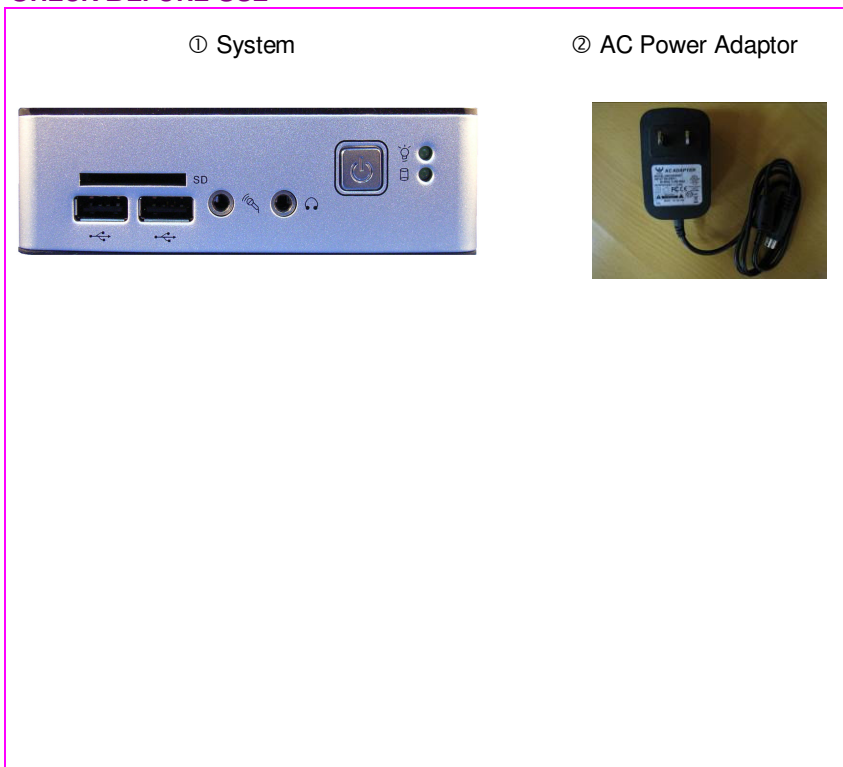


Figure 1

PREFACE

The system is a small computer which allows a range of low end application or project usages. The CPU is 1Ghz, while enough for small applications, it is a 486 type CPU, and therefore there will be some limitations in what applications are suitable. For more standard CPU or faster systems, please see our other small systems which can be lower cost and faster performance overall. For a low end system in a small size, this system is one of our various models to address the need for small compact systems.

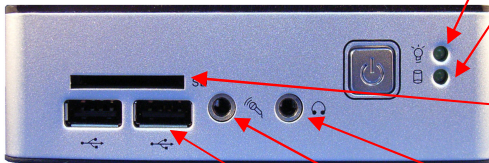
TQ-50 uses different type DC in jack. See p. 21.

Note:

There are some 20 various models of the TQ system, including some with optional wireless, some with optional RS232 com ports, some with optional DIO, and some with various other features which may affect the front or rear IO appearance. In specific, the TQ-50 model uses a different type DC power in connector and a different adapter from the TQ-40 models. The basic TQ system is very similar and same or very similar design in all models, and so it is not practical to make 20 different TQ system manuals for each when most of the differences are minor options. The main differences are listed in this manual.

SYSTEM OVERVIEW

Front Panel



Power LED

The power LED indicates power on.

HDD LED

The HDD LED flashes when the system is working. Never turn off the power when HDD LED is still flashing.

SD Slot

The system is bootable from SD card.

Audio Line Out

Output to speaker

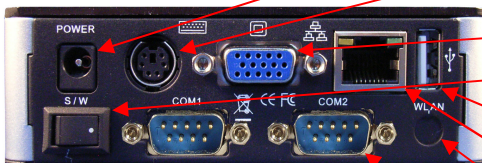
Audio Mic In

For Microphone Input

USB port

For connection to devices with USB interface (HDD, CD/DVD-ROM, Memory Stick, etc.)

Back Panel



► DC Power Jack

► PS/2 Keyboard or Mouse (6-pin)

► VGA

► Power switch

► USB Port

► RJ-45 LAN Jack

► Wireless Antenna connector (optional)

► RS-232RS-422 RS485(optional)

TQ-50 uses standard type DC in jack. See p. 21.

SYSTEM BOARD

SYSTEM SPECIFICATION

CPU

X86 Compatible System on Chip

Main Memory

512MB DDR2

BIOS

AMI BIOS

VGA

XGI Z9S with 32MB DDR2

Resolution to 1280 x 1024 Colors

Audio

Mic In, Line Out

Keyboard and Mouse

PS/2 Keyboard and Mouse

On-Board SATA

SATA 2.0 connector x1

Peripheral

1. USB V2.0 (host) x 3
2. Audio (Mic In, Line Out)
3. SD slot
4. Serial ports x 2
(available for optional model)
5. 24 bit GPIO (OPTIONAL MODEL)

Dimension & Weight

115 x 115 x 35 mm / 505g

Operating System

Suitable for:

Windows XP

Windows XP Embedded

Windows Embedded CE

Linux

PERIPHERALS

CONNECTING THE POWER ADAPTOR

Power Adaptor



To use System immediately, please attach the supplied AC adaptor as a power source. See the left diagram for visual connection.

Connect the DC power jack of the power adaptor to the DC Input jack of System.

Turning ON System



Switch on power as indicated on the figure on your left-side, the system will start automatically.

CONNECTING THE MONITOR

VGA Connection



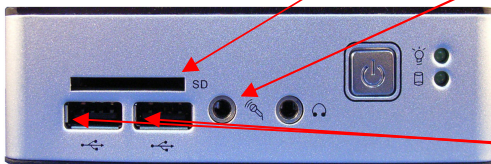
Depending on your choice of viewing, select a conventional CRT or the LCD VGA monitor.

PERIPHERALS

CONNECTING THE USB AND SPEAKER/EARPHONE

System provides USB port (Two in front & one at the back).

Front cabinet



SD

For connection to Device with Compact Flash Card and Micro-SD (T-flash).

Microphone/Earphone

The System supports for Microphone Input and Speaker Output

USB Ports

The USB ports is available for connection to USB devices such as CD-ROM

CONNECTING THE LAN



Connecting to LAN

There is an available RJ-45 LAN jack for connection to the hub of your intranet; and via your server for internet service (see diagram for RJ-45 LAN jack).

TQ-50 uses standard type DC in jack. See p. 21.

CONNECTING THE KEYBOARD AND MOUSE



PS/2 Keyboard or Mouse (6-pin)

The PS/2 Port is available for connecting Keyboard/Mouse (shared)

CONNECTING SERIAL PORT



Serial Ports

The serial port is usually connected to a serial device like modem (option)

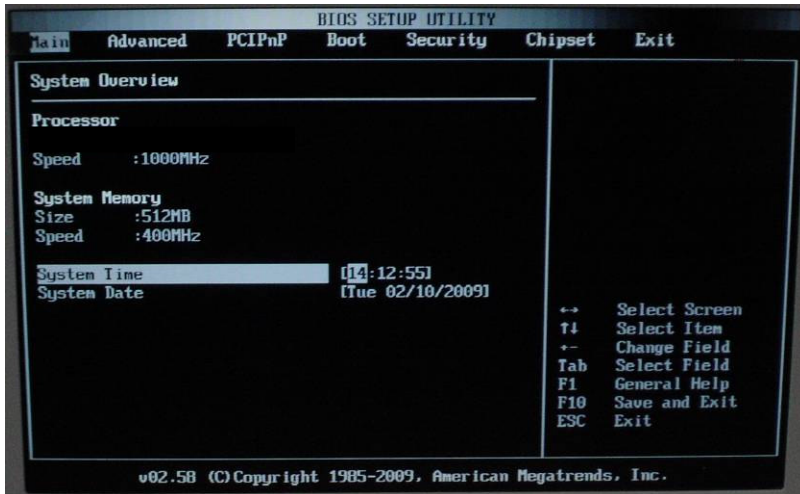
(Note wireless and 2 com ports are an option for most systems)

TQ-50 uses different type DC in jack. See p. 21.

BIOS

RECONFIGURING Bios

1. Take note that AMI BIOS is used in the System. To reconfigure the System, depress or hit the key to enter your BIOS setup main menu.
2. Select from the menu, the desired setup for change.
3. Press <Esc> to go back to main menu.
4. Move "Exit" TAB and select "Save Settings and Exit", press "Y" to save the changes that you just made. System will restart accordingly to your new setup.



(AMI BIOS Setup menu)

TECHNICAL SPECIFICATION

Features	Description
CPU	X86 Compatible System on a Chip
BIOS	AMI BIOS
System Memory	Onboard 512MB DDR2
I/O	
MIO	1 x SATA 2.0 connector 1 x SD slot 1 x RJ-45 Ethernet Connector 3 x RS-232(optional) 1 x PS/2 for K/B or Mouse 24 bit GPIO(optional) 2 x RS-232 ports, and 1x RS-422 port(optional) 2 x RS-232 ports, and 1x RS-485 port(optional)
USB	3 x USB 2.0 Ports (two in front)
Audio	
Integrated Audio	Mic In x 1, Line Out x 1
Display	
VGA	XGI Z9S with 32MB DDR2 External 15-pin D-type female VGA connector TV-Out(optional)
Resolution	Up to 1280x1024
Ethernet	
Remote Boot ROM	Integrated 10/100Mbps LAN Built-in PXE diskless boot function
Mechanical & Environment	
Power Requirement	+5V @ 2A
Operating Temperature	5 ~ 50° C
Operating Humidity	0% - 90% relative humidity, non-condensing
Size (W x H x D)	11.5 x 11.5 x 3.5 cm
Weight	510g
Certification	CE, FCC

TQ Various System Models:

A: Standard Version with SATA and 3 x RS-232 ports

B: Standard Version

C: Standard Version with SATA support

D: Standard Version with 3 x RS-232 ports

E: Standard Version with 2 x RS-232 ports, and 1x RS-422 port

F: Standard Version with 2 x RS-232 ports, and 1x RS-485 port

G: GPIO Version

H: GPIO Version with 2 x RS-232, and 1 x RS-422 port

I: GPIO Version with 2 x RS-232, and 1 x RS-485 port

J: GPIO Version with 3 x RS-232 ports

K: Standard Version with SATA , TV-Out, and 3 x RS-232 ports

L: Standard Version with TV-Out

M: Standard Version with SATA support, and TV-Out

N: Standard Version with 3 x RS-232 ports, and TV-Out

NOTE:

Since there are some 20 or more various versions of TQ systems, and most of them are same basic design, with various different options, there will be differences in front or rear appearances due to various options of course. For some models of the TQ system, a different DC input is used, and there are also differences in com ports, wireless jack, and other various differences. Obviously it is not practical or necessary to make 20 or 30 separate user manuals for each option version. The various options or differences are usually noted here.

This means there will be differences in appearances between some various versions based on the options selected, and while there may be a different IO such as wireless, never the less, it is still a TQ system.

TAKING CARE SYSTEM

This section gives you guidelines on using System – Safe using, Storing and Handling.

STORING

- ▶ Do not place System in a location that is subject to:
 - Heating sources, such as stove, oven, heater, radiator or air duct
 - Direct contact from sunlight
 - Rain or moisture area
 - Excessive dust accumulation area
 - High humidity place
 - Constant or occasional mechanical movement, vibration or shock
 - Strong magnets or magnetic fields or magnetically unshielded speakers
 - Ambient temperature of more than 95°F (35°C) or less than 32°F (0°C)
- ▶ Do not place other electronic device or electrical equipment near System. The electromagnetic field of the System may cause interference subjecting to malfunction.
- ▶ Provide adequate air ventilation (circulation) to prevent internal buildup of heat. Do not place System near the wall, behind the curtains or draperies, in between two books that block its ventilation slots. Leave a space of at least 8 inches (20cm) behind the sides and back panel of the System.
- ▶ Change of environmental temperature: Problems may occur when there is a sudden change of environmental temperature, or if the System is brought directly from a cold location to a warm one, moisture may condense inside System. Turn off System, and contact your nearest dealer.
- ▶ Check the surrounding appliance(s) before using System. Since the System uses high-frequency radio signal and may interface with radio or TV reception causing interference or poor signal display. When this happens, relocate the System by a suitable distance away from the set.
- ▶ Do not drop the System from the working table nor place heavy objects on top of the System.

USING CABLES FOR CONNECTION

- ▶ To avoid problem, use only the proper included ac adapter and cables. The supplier will not be responsible for the connection arising from the other unspecified peripheral equipment.
- ▶ Do not use cut or damaged cables for connection.

CLEANING YOUR SYSTEM

- ▶ Clean the System with a soft, dry cloth or a soft cloth lightly moistened with a mild detergent solution.
- ▶ Do not use any type of abrasive pad, scouring powder, or solvent such as alcohol or benzene, as these may damage the finish of System.
- ▶ When a solid object falls or a liquid spills onto the System, turn off the System immediately and unplug the LAN and power cables. Contact a qualified person or your dealer to check the System before you use it again.
- ▶ Always disconnect the power cord from the power source before cleaning the System.

TROUBLESHOOTING

This section describes the techniques of resolving some basic problems that you encounter when using System. For more troubleshooting guidelines, please contact your nearest dealer for technical support.

TROUBLESHOOTING YOUR SYSTEM

A. SYSTEM does not start

- ▶ Make sure the System is properly secured and plugged into a power source before it is turned on. Make sure the power indicator shows the power is on. See section 2 for more information about “System Overview”.
- ▶ When the System is plugged into a power strip or the UPS (Uninterruptible Power Supply), make sure the power strip or UPS is turned on and working normally.
- ▶ Check if your VGA or LCD monitor is properly plugged into a power source and turned on. Make sure the brightness and contrast controls are adjusted correctly. See the manual that came with your display (monitor) for details.
- ▶ Check if your power control button does not function, by removing the AC adaptor. Wait for one minute, and then reattach all power connection before pressing the power button.
- ▶ Condensation may cause the System to malfunction for a while. If this happens, do not use the System for at least one hour.
- ▶ When you have checked all the above guidelines and the System does not work. Remove the power adaptor from the System, unplug the power cord, and plug it in again. Then turn on the power.

B. BIOS Error Message –

BIOS error message appear when SYSTEM starts

If the BIOS error message appears, press any key to resume or, hit to enter BIOS setup main menu, follow these steps:

1. Press , and the BIOS Setup main menu appears, check if HDD is detected at “Pri Master”. If it is not detected, use Direction keys <↑↓> to choose “AUTO” and then go back to the main menu by pressing <ESC>. Move your cursor down with Direction keys <↓>, and choose “Save Settings and Exit”, a message dialog appears as seen below, hit <Enter>.

“Save current settings and exit (Y/N)? Y”

2. Go to “Exit” menu using the Direction keys <↑↓> and choose the option “Load Optimal Defaults”, then press <Enter>. A message dialog appears as seen below, hit “Y” key and presses <Enter> to save and recover to the factory setting.

“Load Optimal Defaults (Y/N)? Y”



(BIOS Setup menu "Exit")

C. "Operating System Not Found" –

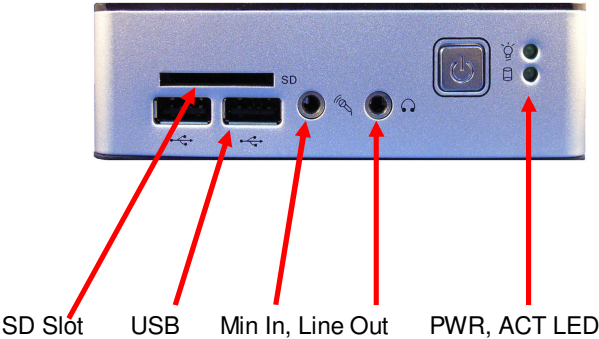
A message indicating that "Operating system not found" appear when my SYSTEM starts (Windows won't start)

- ▶ Enter your BIOS setup main menu by pressing key, be sure that the C: drive is enable.
- ▶ If Windows still does not start, follow these steps to initialize the BIOS:
 Turn off the System.
 Remove any peripheral devices connected to the System.
 Restart the System.
 Press to enter **BIOS Setup main menu** window.
 Follow the steps as written in item **B. BIOS error message**.
- ▶ **For System** : If you have just connect System to a CD/DVD or USB Drivers, remove these peripherals.. And restart System to confirm that the Windows operating system starts properly. If System continues to display the message "Operating system not found," and Windows does not start, please contact your nearest dealer for servicing.

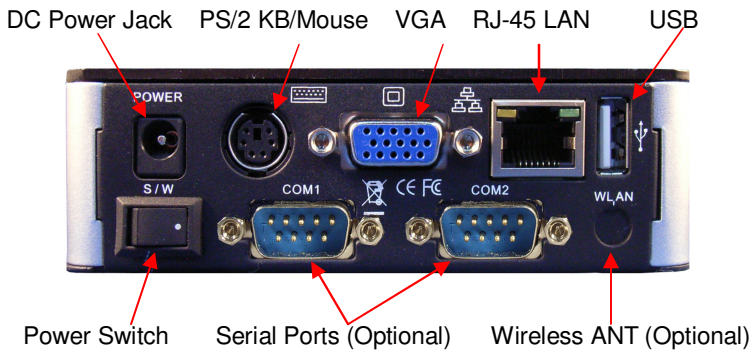
ONBOARD CONNECTORS SUMMARY

SUMMARY TABLE FOR CPU BOARD			
Nbr	Description	Type of Connections	Pin nbrs.
J1	SODIMM-SOC-200P-1.8V	SODIMM socket 200 Pin	200-pin
J3	SATA	SATA socket	7-pin
J5	USB (Front)	USB Connector	8-pin
J6	USB (Front)	USB Connector	8-pin
J7	USB(Back)	USB Connector	8-pin
J8	USB(Inside)	USB Connector	8-pin
J9	Ethernet LAN	RJ-45	8-pin
J10	VGA	D-Sub Connector	15-pin
J11	Line-Out	Audio Jack	2-pin
J12	PS2 connector	Mini Din connector	6-pin
J13	Microphone	Audio Jack	2-pin
J14	COM1 Port	Box Header 5x2 2.0mm	10-pin
J15	COM2 Port	Box Header 5x2 2.0mm	10-pin
J16	DC 5V Input	DC-JACK	1-pin
J17	Power Switch	Power Switch	4-pin

► FRONT CONNECTORS OUTLINE FOR System

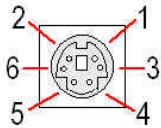


► REAR CONNECTORS OUTLINE FOR System




PIN ASSIGNMENTS

J12:PS/2 Keyboard or Mouse – 6-pin Mini-Din Connector


	Pin #	Signal Name
	1	KBCLK
	2	PMCLK
	3	GND
	4	KBDAT
	5	PMDAT
	6	SB5V

J17:Power SW – Push Button Switch

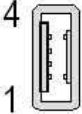
	Pin #	Status
		ON
	O	OFF

J16: DC-IN (15V) –2-pin Mini-Din Lock Pin Socket

J16: DC-IN (15V) –2- Pin Socket

	Pin #	Signal Name
	1	15V Input
	2	GND

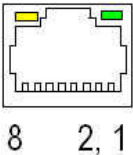
J7: USB (90°)– 4-pin USB Type 1 Connector
(Vertical Type)

	Pin #	Signal Name
	1	VCC
	2	USB0-
	3	USB0+
	4	GND
	5	GGND
	6	GGND

GPIO

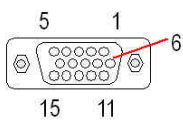
Pin #	Signal Name	Pin #	Signal Name
1	VCC	2	GND
3	GP10	4	GP00
5	GP11	6	GP01
7	GP12	8	GP02
9	GP13	10	GP03
11	GP14	12	GP04
13	GP15	14	GP05
15	GP16	16	GP06
17	GP17	18	GP07
19	GP34	20	GP30
21	GP35	22	GP31
23	GP36	24	GP32
25	GP37	26	GP33

J9:LAN: RJ-45 Connector

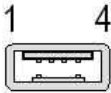
 8 2, 1	Pin #	Signal Name	Pin #	Signal Name
	1	FTXD+	2	FTXD-
	3	FRXIN+	4	NC
	5	NC	6	FRXIN-
	7	NC	8	NC

► PIN ASSIGNMENTS


J15: VGA – 15-pin D-Sub Connector

	Pin #	Signal Name	Pin #	Signal Name	Pin #	Signal Name
	1	MR	6	GND	11	NC
	2	MG	7	GND	12	VCC
	3	MB	8	GND	13	HYSYNC
	4	NC	9	NC	14	VSYNC
	5	GND	10	GND	15	VCC

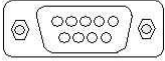
J5,J6,J8:USB (USB2): For connection to external USB device –4-pin USB Type 1 Connector (H)

	Pin #	Signal Name
	1	VCC
	2	USB2-
	3	USB2+
	4	GND
	5	NC
	6	NC

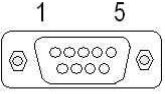
LEDS: POWER ON/OFF & HDD R/W

	LED Color	State
	Green	Power On
	Green	HDD On
	Green Flashes	HDD R/W

J14: COM - 9-pin D-Sub Connector(RS-485/RS422 optional)

	Pin #	Signal Name	Pin #	Signal Name
	1	DCD1/RS-485-1 /422TX-1	2	RXD1/RS485+1 /422TX+1
	3	TXD1/422RX+1	4	DTR1/422RX-1
	5	GND	6	DSR1
	7	RTS1	8	CTS1
	9	RI1	--	--

J15: COM - 9-pin D-Sub Connector

	Pin #	Signal Name	Pin #	Signal Name
	1	--	2	RXD3
	3	TXD3	4	--
	5	GND	6	--
	7	TXD4	8	RXD4
	9	--	--	--