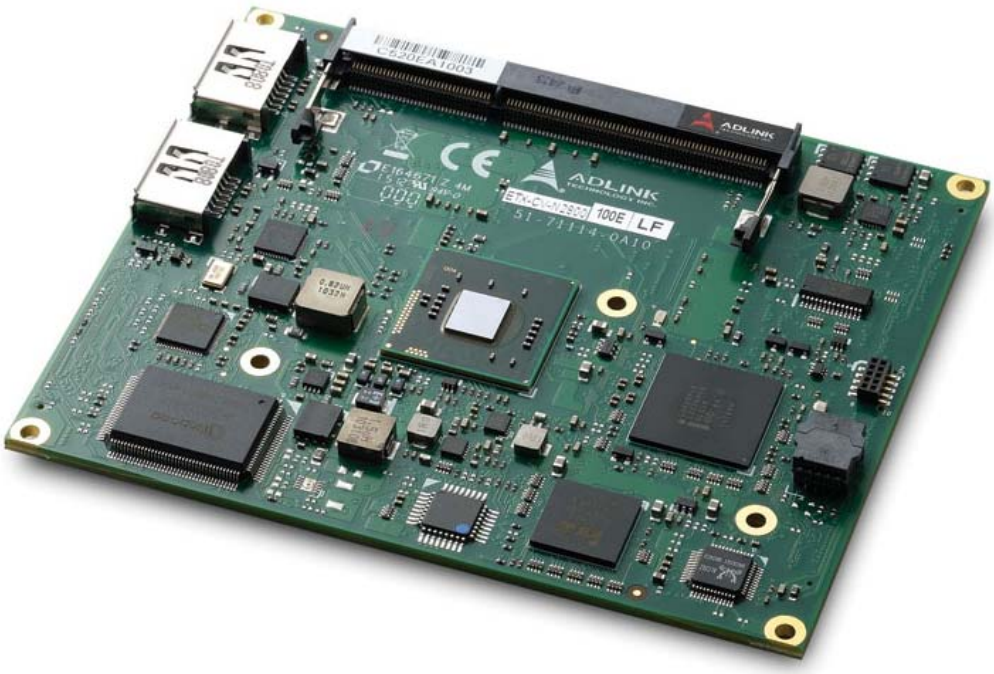
ETX

ETX-CV

User's Manual



Manual Revision: 2.03

Revision Date: May 7, 2015

Part Number: 50-1J041-1030

ADLINK TECHNOLOGY INC.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Revision History

Revision	Date	Change(s)
2.00	2013/09/02	Initial release
2.01	2013/10/25	Update LVDS resolution spec
2.02	2014/11/14	Remove FDD support
2.03	2015/05/07	Correct Ethernet chip

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Table of Contents

Preface **5**

1 Introduction **7**

1.1 Description 7

2 Specifications **8**

2.1 General 8
2.2 Integrated Video 8
2.3 Audio 9
2.4 LAN 9
2.5 Multi I/O 9
2.6 Super I/O 9
2.7 TPM (Trusted Platform Module) 9
2.8 Power Specifications 10
2.9 Operating Systems Support 11
2.10 Mechanical and Environmental 11
2.11 Ordering Information 11

3 Function Diagram **12**

4 Mechanical Dimensions **13**

5 Embedded Functions **14**

5.1 Watchdog Timer 14
5.2 Hardware Monitoring 15

6 Pin-out and Signal Descriptions **16**

6.1 Connector Locations 16
6.2 Pin Compatibility 16
6.3 Pin Definitions 17
6.4 Signal Descriptions 22

7 System Resources **31**

7.1 System Memory Map 31
7.2 I/O Address Map 32
7.3 Interrupt Request (IRQ) Lines 34
7.4 PCI Configuration Space Map 35

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7.5 PCI Interrupt Routing Map 36
7.6 System Management Bus (I2C-compatible) 36
8 BIOS Setup Utility 37
8.1 Starting the BIOS 37
8.2 Main Setup 42
8.3 Advanced BIOS Setup 43
8.4 Chipset Configuration 61
8.5 Boot Setup 65
8.6 Security Setup 68
8.7 Save & Exit 69
9 BIOS Checkpoints, Beep Codes 71
9.1 Status Code Ranges 72
9.2 Standard Status Codes 72
9.3 OEM-Reserved Status Code Ranges 78
Appendix A: Connectors and Mounting 79
A.1 Carrier Board ETX Connecter Heights (Hirose FX8/FX8C Receptacles) 79
A.3 Mounting Procedures 80
A.4 Standoff Types - Carrier Board 81
Important Safety Instructions 82
Getting Service 84

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Preface

Copyright 2013-15 ADLINK Technology, Inc.

This document contains proprietary information protected by copyright. All rights are reserved. No part of this manual may be reproduced by any mechanical, electronic, or other means in any form without prior written permission of the manufacturer.

Disclaimer

The information in this document is subject to change without prior notice in order to improve reliability, design, and function and does not represent a commitment on the part of the manufacturer.

In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation, even if advised of the possibility of such damages.

Environmental Responsibility

ADLINK is committed to fulfill its social responsibility to global environmental preservation through compliance with the European Union's Restriction of Hazardous Substances (RoHS) directive and Waste Electrical and Electronic Equipment (WEEE) directive. Environmental protection is a top priority for ADLINK. We have enforced measures to ensure that our products, manufacturing processes, components, and raw materials have as little impact on the environment as possible. When products are at their end of life, our customers are encouraged to dispose of them in accordance with the product disposal and/or recovery programs prescribed by their nation or company.

Trademarks

AMI Aptio® is a registered trademark of American Megatrends, Inc. ETX® is a registered trademark of Kontron Embedded Modules GmbH.

Product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective companies.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Conventions

Take note of the following conventions used throughout this manual to make sure that users perform certain tasks and instructions properly.



Additional information, aids, and tips that help users perform tasks.



Information to prevent ***mino***r physical injury, component damage, data loss, and/or program corruption when trying to complete a task.



Information to prevent ***serious*** physical injury, component damage, data loss, and/or program corruption when trying to complete a specific task.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1 Introduction

1.1 Description

The ETX-CV is an ETX v3.02 compliant module specially designed to facilitate speedy development of semi custom designs. ETX is an open standard that targets the market for embedded OEM projects. An ETX core combined with a custom made carrier board represents a value solution that allows OEM customers to get to the market fast. The new ETX v3.02 specification adds SATA support to ETX in the form of two connectors on the module itself, leaving the ETX board-to-board interface 100% compatible with baseboards designed under the earlier ETX v2.xx specification.

The ETX-CV is positioned as an entry level ETX module for generic systems but also for systems requiring a full set of graphics features. The module comes with integrated support for high VGA up to 1920 x 1200 resolution (WUXGA), single/dual channel 18/24-bit LVDS and onboard DisplayPort connector.

The ETX-CV conforms to the latest ETX® 3.02 specification and provides two additional onboard SATA connectors while maintaining full backward compatibility with earlier ETX® standards. Operating system support includes Windows XP, Windows XP Embedded, Windows 7, WinCE, and Linux. Primary focus is for applications in Medical Diagnostics and Imaging, Gaming, Industrial Automation, Test and Measurement, POS, and Industrial Control.

The dual-core Intel® Atom™ Processor N2000 and D2000 Series on the ETX-CV replaces the previous generation Intel® Atom™ processors N4xx/N5xx. Although much smaller in size, Intel® Atom™ processors share the same architecture as Intel® Core™2 Duo processors and additionally support Intel® Hyper-Threading Technology, allowing more than one code thread to be executed at the same time on a single core. The ETX-CV's thermal design and powerful CPU core allow it to provide the same or even better performance than earlier generation modules at a more modest power consumption.

The ETX-CV supports up to 4 GB of DDR3 memory on a single SODIMM, incorporates an Intel 10/100BASE-T Ethernet controller, and provides dual channel IDE, two channels SATA, four USB 2.0 ports, two serial ports, one parallel port, one PS/2 keyboard/mouse interface and HD audio.

The ETX-CV fully supports PCI and legacy ISA based on high speed PCI/ISA bridge and is equipped with an AMI Aptio BIOS supporting embedded features such as Remote Console, CMOS backup for battery-less operation, CPU and System Monitoring and Watchdog Timer.

The ETX-CV is a RoHS compliant and leadfree product.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2 Specifications

2.1 General

- **CPU:** Intel® Atom™ N2600 1.66GHz with 1MB L2 cache, 3.5W
  Intel® Atom™ N2800 1.83GHz with 1MB L2 cache, 6.5W
  Intel® Atom™ D2550 1.86GHz with 1MB L2 cache, 10W
  - On-die primary 32-kB instructions cache and 24-kB write back data cache
  - Intel® Hyper-Threading Technology, 2-threads per core
  - Supports C0 and C1 states only for D2550
  - Supports C0-C4, C1E-C4E and Deep Power Down Technology (code named C6) for N2600/N2800
- **Memory:** Single SODIMM socket supporting:
  - up to 4 GB of non-ECC, un-buffered, 1066 MHz standard DDR3 SODIMM memory
- **Chipset:** Intel® NM10 Express chipset
- **BIOS:** AMI Aptio UEFI on 16Mbit SPI flash
- **Hardware Monitor:** Supply voltages and CPU temperature
- **Watchdog Timer:** Programmable timer ranges to generate RESET
- **Expansion Busses**: 32-bit PCI 2.3 Masters at 33 MHz
  ISA 16-bit (via PCI/ISA bridge), no DMA support
  SMBus/I^2C

2.2 Integrated Video

- **GPU:** Integrated in CPU, supports dual independent displays
- **VGA Interface:** Analog RGB support by 350Hz RAMDAC, resolution up to 1920 x1200 (WUXGA) @ 60Hz
- **LVDS Interface:**
  - single/dual channel 18/24-bit with resolution up to 1920 x1200

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.3 Audio

- **Audio Codec:** Realtek ALC262 HDA

2.4 LAN

- **Chipset**: Realtek RTL8111E
- **Interface:** 10/100 Mbps with Wake-on-LAN and Alert on LAN support

2.5 Multi I/O

- **IDE (PATA):** Two channels IDE with UDMA 100 support
- **SATA**: Two channels SATA 3Gb/s with connectors on module
- **USB**: Supports up to four ports USB 2.0

2.6 Super I/O

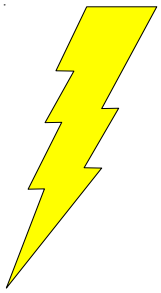
- **Chipset**: W83627DHG-PT
- **Serial**: Two high speed RS-232C ports (COM1/COM2)
- **IrDA**: SIR IrDA 1.1 compliant
- **Parallel**: SPP, EPP, and ECP mode
- **Keyboard & Mouse**: One PS/2 keyboard and one PS/2 mouse

2.7 TPM (Trusted Platform Module)

- **Chipset**: Infineon SLB9635TT1.2
- **Type:** TPM 1.2

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.8 Power Specifications



- **Input Power**: AT mode and ATX mode
- **Power Management**: ACPI 3.0 compliant with battery support
- **Power States**: supports S0, S1, S3, S4, S5

Test Configuration

Function	Configuration
Memory	Transcend 4GB DDR3 1333 SODIMM (I) (SEC 107 HCH9K4B260846C)
Graphics	Intel® Atom® N2000/D2000 Series Embedded Media and Graphics Driver
Hard Drive	Seagate ST320LT020 MomentusThin 320G
Backplane	ETX-Proto B3
Power Supply	FSP FSP350-60PFG 350W

Intel® Atom™ Processor N2600 1.66Gz, (1MB L2 cache, 3.5W)

Power State	Power Requirement	Current	Power
Windows 7 logon screen (idle)	+5V (4.88V)	1.29A	6.30W
Max. Load (Intel Power Utility Tool)	+5V (4.86V)	2.04A	9.91W
S5 Mode (soft off)	5V Standby	0.06A	0.30W
S3 Mode (suspend to RAM)	5V Standby	0.07A	0.35W

Intel® Atom™ Processor N2800 1.86Gz, (1MB L2 cache, 6.5W)

Power State	Power Requirement	Current	Power
Windows 7 logon screen (idle)	+5V (4.82V)	1.52A	7.33W
Max. Load (Intel Power Utility Tool)	+5V (4.80V)	2.83A	13.58W
S5 Mode (soft off)	5V Standby	0.07A	0.35W
S3 Mode (suspend to RAM)	5V Standby	0.09A	0.45W

Intel® Atom™ Processor D2550 1.86GHz, (1MB L2 cache, 10 W)

Power State	Power Requirement	Current	Power
Windows 7 logon screen (idle)	+5V (4.88V)	1.78A	8.69W
Max. Load (Intel Power Utility Tool)	+5V (4.84V)	2.89A	13.99W
S5 Mode (soft off)	5V Standby	0.057A	0.29W
S3 Mode (suspend to RAM)	5V Standby	0.09A	0.45W

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.9 Operating Systems Support

- **Standard Support**
  - Windows 7 32-bit
  - Windows Embedded Compact 7
  - Linux 2.8
- **Extended Support (BSP)**
  - Embedded XP BSP
  - WinCE 6.0 BSP
  - Linux 2.6.x BSP
- **Libraries, API support**
  - AIDI I2C Library for Win32, WinCE and Linux

2.10 Mechanical and Environmental

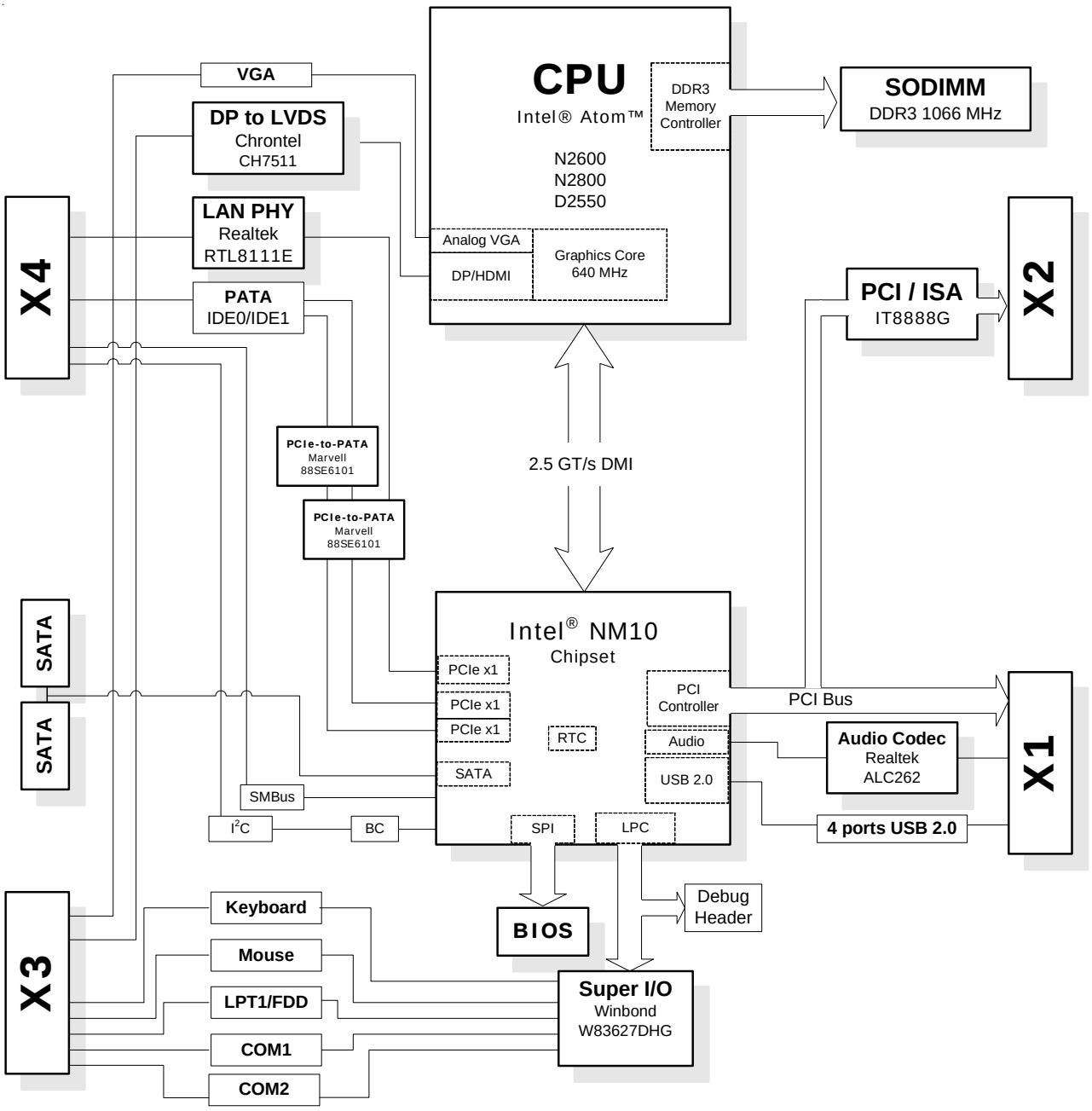
- **Form factor and Type:** ETX rev 3.02
- **Dimensions:** 95 x 114 mm
- **Standard Operating Temperature:** 0°C to 60°C
- **Relative Humidity:** 5% to 95%
- **Shock** : 15G peak-to-peak, 11ms duration, non-operation
- **Vibration**:
  Non-operating : 1.88 Grms, 5-500 Hz, each axis
  Operating : 0.5 Grms, 5-500 Hz, each axis
- **Certification :** CE, FCC

2.11 Ordering Information

- **ETX-CV-N2600**
  ETX Module with low power Dual Core Intel® Atom™ Processor N2600 (1.66GHz) with NM10 Chipset
- **ETX-CV-N2800**
  ETX Module with low power Dual Core Intel® Atom™ Processor N2800 (1.83GHz) with NM10 Chipset
- **ETX-CV-D2550**
  ETX Module with Dual Core Intel® Atom™ Processor D2550 (1.86GHz) with NM10 Chipset

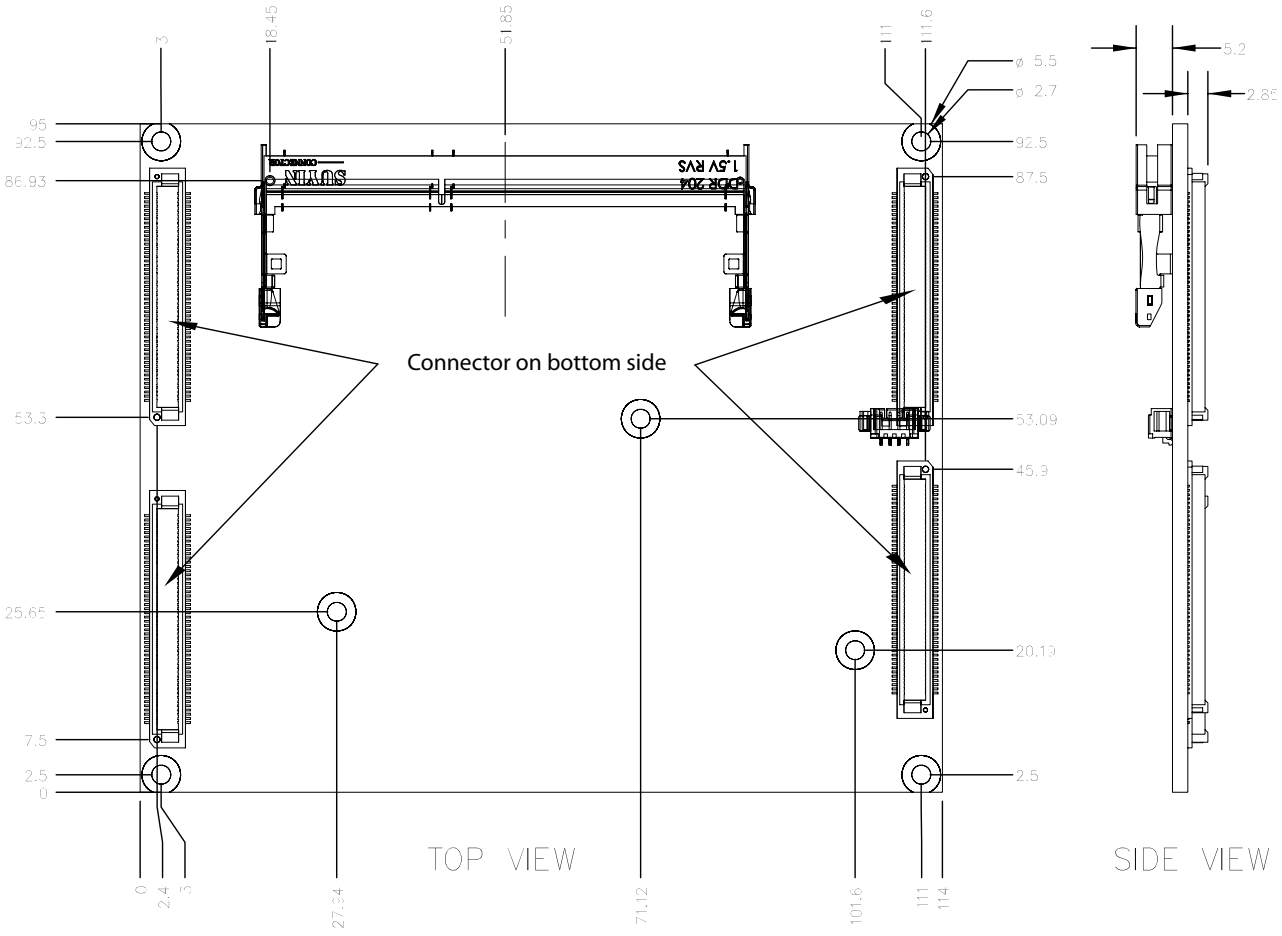
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

3 Function Diagram



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

4 Mechanical Dimensions



All ∅ tolerances ± 0.05 mm
Other tolerances ± 0.2 mm

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

5 Embedded Functions

All embedded board functions on ADLINK's Computer on Modules are supported at the operating system level using the ADLINK Intelligent Device Interface (AIDI) library. The AIDI API programming interface is compatible and identical across all supported ADLINK Computer on Modules and all supported operating systems. The AIDI library includes a demo program to demonstrate the library's functionallity.

5.1 Watchdog Timer

The ETX-CV implements a Watchdog timer that can be used to automatically detect software execution problems or system hangs and reset the board if necessary. The Watchdog timer consists of a counter that counts down from an initial value to zero. When the system is operating normally, the software that sets the intial value periodically resets the counter so that the it never reaches zero. If the counter reaches zero before the software resets it, the system is presumed to be malfunctioning and a reset signal is asserted.

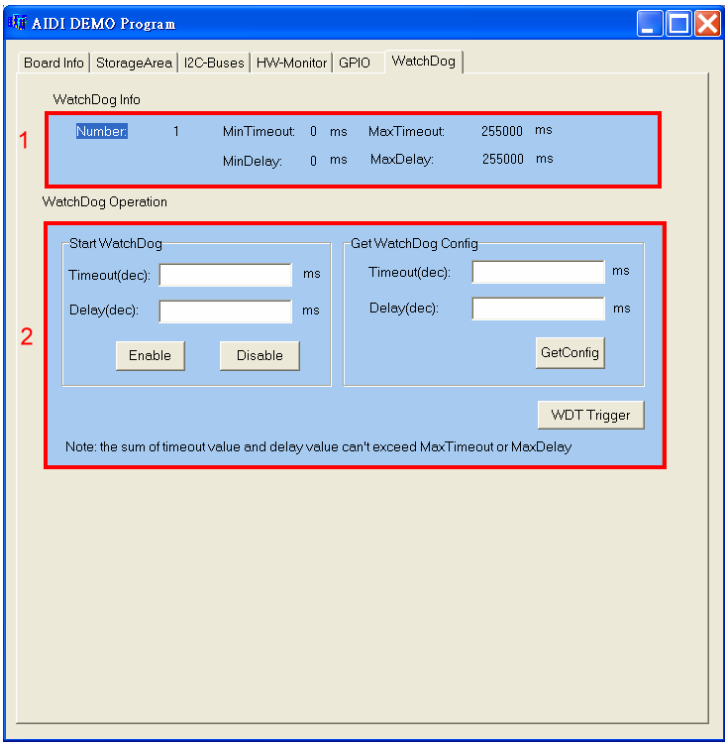


The AIDI Library Watchdog functions support Watchdog control of the board. If the Watchdog begins countdown and reaches zero, it will access the CPU's RESET signal to reset the system. This application must call another function named AidiWDogTrigger that triggers the Watchdog to restart to prevent system reset.

AIDI Demo Program
- Watchdog Tab

The AIDI Demo Program allows retrieval of the current Watchdog status and updating of the Watchdog settings

If the Watchdog is enabled, the user can click the *WDT Trigger* button to manually reset the counter and prevent the system from resetting



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

5.2 Hardware Monitoring

To ensure system health of your embedded system ADLINK's Computer on Modules come with built in support for monitoring of CPU temperatures and critical module voltage levels.

The AIDI Library provides simple APIs at the application level to support these functions and adds alarm functions when voltage or temperature levels exceeds the upper or lower limit set by the user.

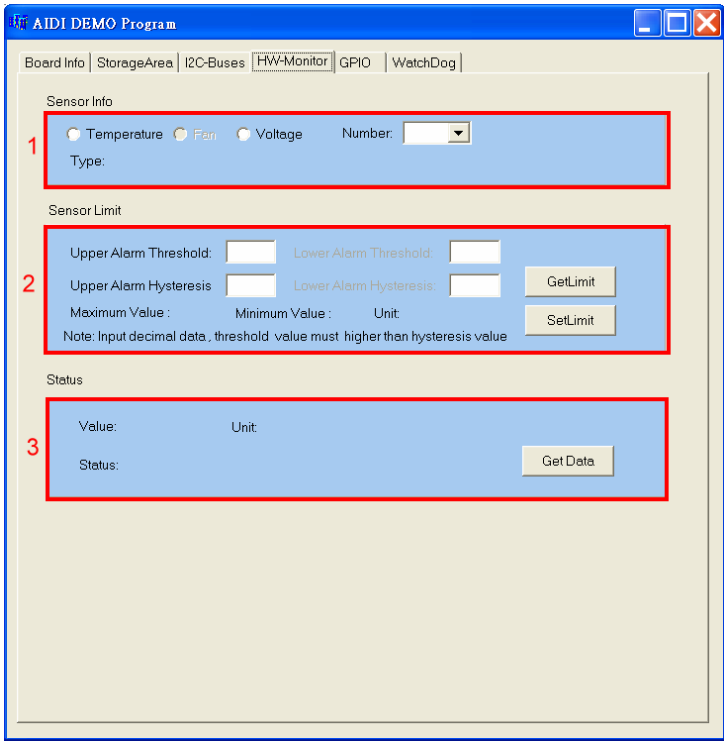
On the ETX-CV the following monitored values can be read from the module:
CPU temperature, Vcore, 1.05V, 3.3V, 5V and VBAT.

AIDI Demo Program
- HW Monitor Tab

Field 1 displays detected sensors (number).

Field 2 allows setting of upper and lower alarm limits.

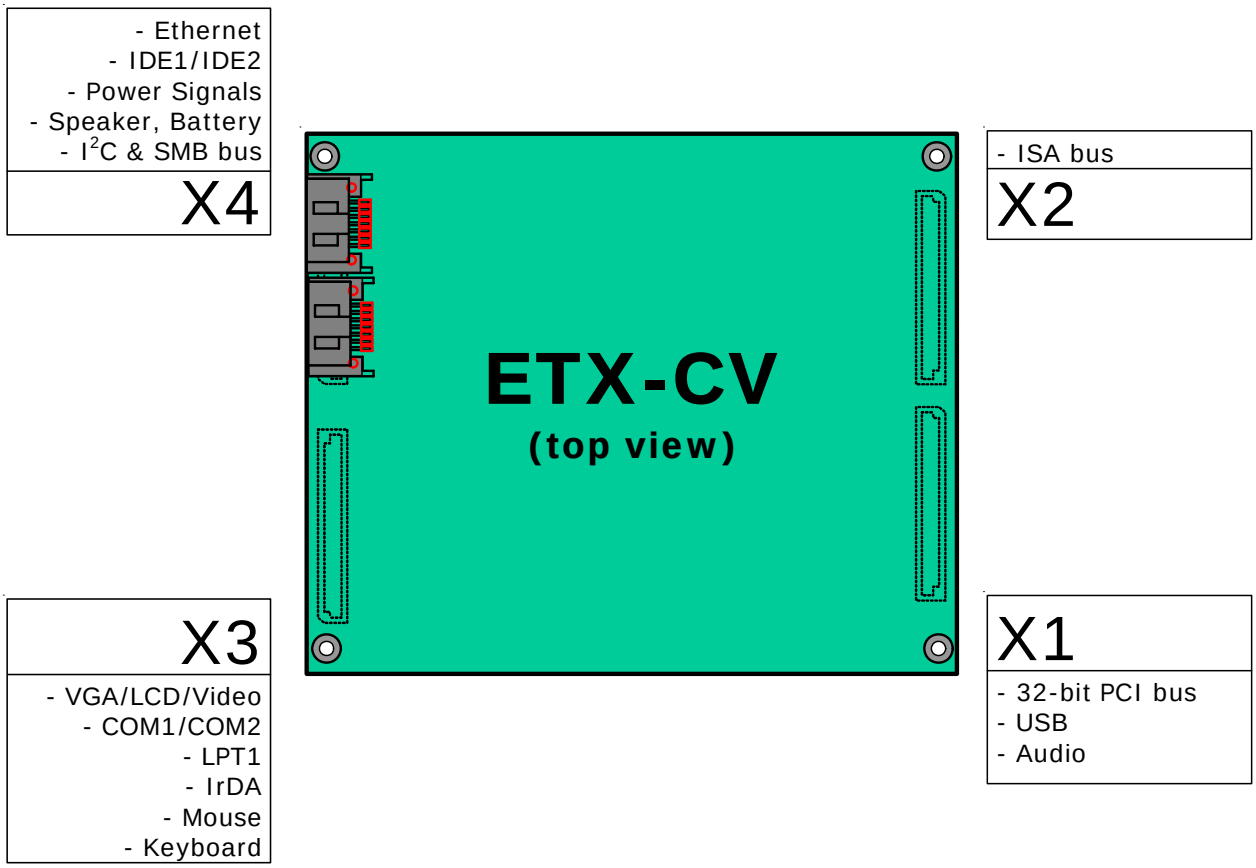
Field 3 displays read out information of sensors.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

6 Pin-out and Signal Descriptions

6.1 Connector Locations



6.2 Pin Compatibility

All pins on X1, X2, X3, and X4 of the ETX-CV comply with pin and signal descriptions used in the ETX Specification version 3.02. This document contains a description of pins, signal descriptions, and mechanical characteristics of the ETX form factor.

NOTE:

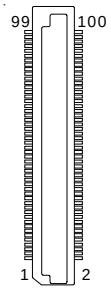
Compared to earlier ETX revisons (ETX rev 2.x)
ETX 3.02 revision adds “SATA connectors on the module” to the ETX specification and is further pin to pin compatible with earlier 2.x ETX revisions.
(X1, X2, X3, X4 pinout on rev 2.x equal those on revison 3.02)

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

6.3 Pin Definitions

X1: PCI-bus, USB, & Audio

X1



Pin	Signal	Pin	Signal
1	GND	2	GND
3	PCICLK3	4	PCICLK4
5	GND	6	GND
7	PCICLK1	8	PCICLK2
9	REQ3#	10	GNT3#
11	GNT2#	12	3V[1]
13	REQ2#	14	GNT1#
15	REQ1#	16	3V[1]
17	GNT0#	18	RSV
19	5VCC	20	5VCC
21	SERIRQ	22	REQ0#
23	AD0	24	3V[1]
25	AD1	26	AD2
27	AD4	28	AD3
29	AD6	30	AD5
31	CBE0#	32	AD7
33	AD8	34	AD9
35	GND	36	GND
37	AD10	38	AUXAL
39	AD11	40	MIC
41	AD12	42	AUXAR
43	AD13	44	ASVCC
45	AD14	46	SDNL
47	AD15	48	ASSGND
49	CBE1#	50	SNDR

Pin	Signal	Pin	Signal
51	5VCC	52	5VCC
53	PAR	54	SERR#
55	GPERR	56	RSV
57	PME#	58	USB2-
59	LOCK#	60	DEVSEL#
61	TRDY#	62	USB3-
63	IRDY#	64	STOP#
65	FRAME#	66	USB2+
67	GND	68	GND
69	AD16	70	CBE2#
71	AD17	72	USB3+
73	AD19	74	AD18
75	AD20	76	USB0N
77	AD22	78	AD21
79	AD23	80	USB1-
81	AD24	82	CBE3#
83	5VCC	84	5VCC
85	AD25	86	AD26
87	AD28	88	USB0+
89	AD27	90	AD29
91	AD30	92	USB1+
93	PCIRST#	94	AD31
95	INTC#	96	INTD#
97	INTA#	98	INTB#
99	GND	100	GND

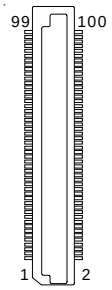
NOTE: The 3V (3.3 V ±5%) is generated onboard. Pins may be used to power devices on the carrier board up to a maximum load of 500 mA.

CAUTION: **Do not connect the 3V pin to external 3.3V supply power.**

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

X2: ISA Bus

X2



Pin	Signal	Pin	Signal
1	GND	2	GND
3	SD14	4	SD15
5	SD13	6	MASTER#
7	SD12	8	DREQ7
9	SD11	10	DACK7#
11	SD10	12	DREQ6
13	SD9	14	DACK6#
15	SD8	16	DREQ5
17	MEMW#	18	DACK5#
19	MEMR#	20	DREQ0
21	LA17	22	DACK0#
23	LA18	24	IRQ14
25	LA19	26	IRQ15
27	LA20	28	IRQ12[1]
29	LA21	30	IRQ11
31	LA22	32	IRQ10
33	LA23	34	IO16#
35	GND	36	GND
37	SBHE#	38	M16#
39	SA0	40	OSC
41	SA1	42	BALE
43	SA2	44	TC
45	SA3	46	DACK2#
47	SA4	48	IRQ3
49	SA5	50	IRQ4

Pin	Signal	Pin	Signal
51	5VCC	52	5VCC
53	SA6	54	IRQ5
55	SA7	56	IRQ6
57	SA8	58	IRQ7
59	SA9	60	SYSCLK
61	SA10	62	REFSH#
63	SA11	64	DREQ1
65	SA12	66	DACK1#
67	GND	68	GND
69	SA13	70	DREQ3
71	SA14	72	DACK3#
73	SA15	74	IOR#
75	SA16	76	IOW#
77	SA18	78	SA17
79	SA19	80	SMEMR#
81	IOCHRDY	82	AEN
83	5VCC	84	5VCC
85	SD0	86	SMEMW#
87	SD2	88	SD1
89	SD3	90	NOWS#
91	DREQ2	92	SD4
93	SD5	94	IRQ9
95	SD6	96	SD7
97	IOCHK#	98	RSTDRV
99	GND	100	GND

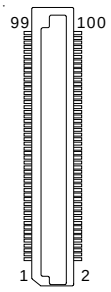
NOTE:

[1]IRQ12 is reserved for a PS/2 mouse.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

X3: CRT, LCD (LVDS), & Video

X3



Pin	Signal	Pin	Signal
1	GND	2	GND
3	R	4	B
5	HSY	6	G
7	VSY	8	DDCK
9	NC	10	DDDA
11	LCD16	12	LCD18
13	LCD17	14	LCD19
15	GND	16	GND
17	LCD13	18	LCD15
19	LCD12	20	LCD14
21	GND	22	GND
23	LCD8	24	LCD11
25	LCD9	26	LCD10
27	GND	28	GND
29	LCD4	30	LCD7
31	LCD5	32	LCD6
33	GND	34	GND
35	LCD1	36	LCD3
37	LCD0	38	LCD2
39	5VCC	40	5VCC
41	JILI_SDA	42	LTGO0
43	JILI_SCL	44	BLON#
45	NC	46	DIGON
47	COMP	48	Y
49	NC	50	C

First LVDS Channel

Signal	LVDS Signal
LCD0	Txout 0-
LCD1	Txout 0+
LCD2	Txout 1-
LCD3	Txout 1+
LCD4	Txout 2-
LCD5	Txout 2+
LCD6	Txclk -
LCD7	Txclk +
LCD8	Txout 3-
LCD9	Txout 3+

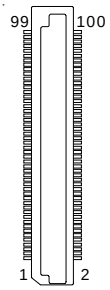
Second LVDS Channel

Signal	LVDS Signal
LCD10	Txout 0-
LCD11	Txout 0+
LCD12	Txout 1-
LCD13	Txout 1+
LCD14	Txout 2-
LCD15	Txout 2+
LCD16	Txclk -
LCD17	Txclk +
LCD18	Txout 3-
LCD19	Txout 3+

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

X3: COM1/2, LPT1, IrDA, Mouse, & Keyboard

X3

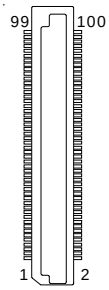


Pin	Signal	Pin	
51	LPT/FLPY#	52	RESERVED
53	5VCC	54	GND
55	STB#	56	AFD#
57	RESERVED	58	PD7
59	IRRX	60	ERR#
61	IRTX	62	PD6
63	RXD2	64	INIT#
65	GND	66	GND
67	RTS2#	68	PD5
69	DTR2#	70	SLIN#
71	DCD2#	72	PD4
73	DSR2#	74	PD3
75	CTS2#	76	PD2
77	TXD2	78	PD1
79	RI2#	80	PD0
81	5VCC	82	5VCC
83	RXD1	84	ACK#
85	RTS1#	86	BUSY
87	DTR1#	88	PE
89	DCD1#	90	SLCT#
91	DSR1#	92	MSCLK
93	CTS1#	94	MSDAT
95	TXD1	96	KBCLK
97	RI1#	98	KBDAT
99	GND	100	GND

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

X4: IDE1, IDE2, Ethernet, & Miscellaneous

X4



Pin	Signal	Pin	Signal
1	GND	2	GND
3	5V_SB	4	PWGIN
5	PS_ON	6	SPEAKER
7	PWRBTN#	8	BATT
9	KBINH	10	LILED#
11	RSMRST#[1]	12	ACTLED#
13	ROMKBCS#[2]	14	SPDLED#
15	EXT_PRG[2]	16	I2CLK[3]
17	5VCC	18	5VCC
19	OVCR#	20	NC
21	EXTSMI#	22	I2DAT[3]
23	SMBCLK[3]	24	SMBDATA[3]
25	S_CS3#	26	SMBALRT#
27	S_CS1#	28	NC
29	S_A2	30	P_CS3#
31	S_A0	32	P_CS1#
33	GND	34	GND
35	PDIAG_S	36	P_A2
37	S_A1	38	P_A0
39	S_INTRQ	40	P_A1
41	BATLOW#[2]	42	GPE1#[2]
43	S_AK#	44	P_INTRQ
45	S_RDY	46	P_AK#
47	S_IOR#	48	P_RDY
49	5VCC	50	5VCC

Pin	Signal	Pin	Signal
51	S_IOW#	52	P_IOR#
53	S_DRQ	54	P_IOW#
55	S_D15	56	P_DRQ
57	S_D0	58	P_D15
59	S_D14	60	P_D0
61	S_D1	62	P_D14
63	S_D13	64	P_D1
65	GND	66	GND
67	S_D2	68	P_D13
69	S_D12	70	P_D2
71	S_D3	72	P_D12
73	S_D11	74	P_D3
75	S_D4	76	P_D11
77	S_D10	78	P_D4
79	S_D5	80	P_D10
81	5VCC	82	5VCC
83	S_D9	84	P_D5
85	S_D6	86	P_D9
87	S_D8	88	P_D6
89	GPE2#[2]	90	CBLID_P#
91	RXD#	92	P_D8
93	RXD	94	S_D7
95	TXD#	96	P_D7
97	TXD	98	HDRST#
99	GND	100	GND

NOTE:

[1]May be affected by external circuitry to reset the power management logic of the ETX module. Most designs do not use and pin is not connected.

[2]Reserved, do not connect

[3]See also: section 7.7 System Management Bus (I2C-compatible)

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

6.4 Signal Descriptions

X1

Pin	Signal	Description	Type	PU/PD	Comment
1	GND	Ground	PWR	-	-
2	GND	Ground	PWR	-	-
3	PCICLK3	PCI Clock Slot 3	O-3,3	-	-
4	PCICLK4	PCI Clock Slot 4	O-3,3	-	-
5	GND	Ground	PWR	-	-
6	GND	Ground	PWR	-	-
7	PCICLK1	PCI Clock Slot 1	O-3,3	-	-
8	PCICLK2	PCI Clock Slot 2	O-3,3	-	-
9	REQ3#	PCI Bus Request 3	I-3,3	PU 8k2 3,3V	-
10	GNT3#	PCI Bus Grant 3	O-3,3	-	int. PU 20k 3,3V
11	GNT2#	PCI Bus Grant 2	O-3,3	-	int. PU 20k 3,3V
12	3V	Power +3,3V	PWR	-	-
13	REQ2#	PCI Bus Request 2	I-3,3	PU 8k2 3,3V	-
14	GNT1#	PCI Bus Grant 1	O-3,3	-	int. PU 20k 3,3V
15	REQ1#	PCI Bus Request 1	I-3,3	PU 8k2 3,3V	-
16	3V	Power +3,3V	PWR	-	-
17	GNT0#	PCI Bus Grant 0	O-3,3	-	int. PU 20k 3,3V
18	RSVD	-	NC	-	Reserved
19	5VCC	Power +5V	PWR	-	-
20	5VCC	Power +5V	PWR	-	-
21	SERIRQ	Serial Interrupt Reqest	IO-3,3	PU 8k2 3,3V	-
22	REQ0#	PCI Bus Request 0	I-3,3	PU 8k2 3,3V	-
23	AD0	PCI Adress & Data Bus line	IO-3,3	-	
24	3V	Power +3,3V	PWR	-	-
25	AD1	PCI Adress & Data Bus line	IO-3,3	-	-
26	AD2	PCI Adress & Data Bus line	IO-3,3	-	-
27	AD4	PCI Adress & Data Bus line	IO-3,3	-	-
28	AD3	PCI Adress & Data Bus line	IO-3,3	-	-
29	AD6	PCI Adress & Data Bus line	IO-3,3	-	-
30	AD5	PCI Adress & Data Bus line	IO-3,3	-	-
31	CBE0#	PCI Bus Command and Byte enables 0	IO-3,3	-	-
32	AD7	PCI Adress & Data Bus line	IO-3,3	-	-
33	AD8	PCI Adress & Data Bus line	IO-3,3	-	-
34	AD9	PCI Adress & Data Bus line	IO-3,3	-	-
35	GND	Ground	PWR	-	-
36	GND	Ground	PWR	-	-
37	AD10	PCI Adress & Data Bus line	IO-3,3	-	-
38	AUXAL	Auxiliary Line Input Left	I		
39	AD11	PCI Adress & Data Bus line	IO-3,3	-	-
40	MIC	Microphone Input	I	-	-
41	AD12	PCI Adress & Data Bus line	IO-3,3	-	-
42	AUXAR	Auxiliary Line Input Right	I		
43	AD13	PCI Adress & Data Bus line	IO-3,3	-	-
44	ASVCC	Analog Supply of Sound Controller	O-5	-	-
45	AD14	PCI Adress & Data Bus line	IO-3,3	-	-
46	SNDL	Audio Out Left	O	-	-
47	AD15	PCI Adress & Data Bus line	IO-3,3	-	-
48	ASGND	Analog Ground of Sound Controller	P	-	-
49	CBE1#	PCI Bus Command and Byte enables 1	IO-3,3	-	-
50	SNDR	Audio Out Right	O	-	-

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Signal Descriptions (cont'd)

X1

Pin	Signal	Description	Type	PU/PD	Comment
51	5VCC	Power +5V	PWR		
52	5VCC	Power +5V	PWR		
53	PAR	PCI Bus Parity	IO-3,3		
54	SERR#	PCI Bus System Error	IO-3,3	PU 8k2 3,3V	
55	GPERR#	PCI Bus Grant Error	IO-3,3	PU 8k2 3,3V	
56	RSV	-	NC		Reserved
57	PME#	PCI Power Management Event	IO-3,3		int. PU 20k 3,3V
58	USB2N	USB Data- Port2	I/O - DP		int. PD 15k
59	LOCK#	PCI Bus Lock	IO-3,3	PU 8k2 3,3V	
60	DEVSEL#	PCI Bus Device Select	IO-3,3	PU 8k2 3,3V	
61	TRDY#	PIC Bus Target Ready	IO-3,3	PU 8k2 3,3V	
62	USB3N	USB Data- Port3	I/O - DP		int. PD 15k
63	IRDY#	PCI Bus Initiator Ready	IO-3,3	PU 8k2 3,3V	
64	STOP#	PCI Bus Stop	IO-3,3	PU 8k2 3,3V	
65	FRAME#	PCI Bus Cycle Frame	IO-3,3	PU 8k2 3,3V	
66	USB2P	USB Data+ Port2	I/O - DP		int. PD 15k
67	GND	Ground	PWR		
68	GND	Ground	PWR		
69	AD16	PCI Adress & Data Bus line	IO-3,3		
70	CBE2#	PCI Bus Command and Byte enables 2	IO-3,3		
71	AD17	PCI Adress & Data Bus line	IO-3,3		
72	USB3P	USB Data+ Port3	I/O - DP		int. PD 15k
73	AD19	PCI Adress & Data Bus line	IO-3,3		
74	AD18	PCI Adress & Data Bus line	IO-3,3		
75	AD20	PCI Adress & Data Bus line	IO-3,3		
76	USB0N	USB Data- Port0	I/O - DP		int. PD 15k
77	AD22	PCI Adress & Data Bus line	IO-3,3		
78	AD21	PCI Adress & Data Bus line	IO-3,3		
79	AD23	PCI Adress & Data Bus line	IO-3,3		
80	USB1N	USB Data- Port1	I/O - DP		int. PD 15k
81	AD24	PCI Adress & Data Bus line	IO-3,3		
82	CBE3#	PCI Bus Command and Byte enables 3	IO-3,3		
83	5VCC	Power +5V	PWR		
84	5VCC	Power +5V	PWR		
85	AD25	PCI Adress & Data Bus line	IO-3,3		
86	AD26	PCI Adress & Data Bus line	IO-3,3		
87	AD28	PCI Adress & Data Bus line	IO-3,3		
88	USB0P	USB Data+ Port0	I/O - DP		int. PD 15k
89	AD27	PCI Adress & Data Bus line	IO-3,3		
90	AD29	PCI Adress & Data Bus line	IO-3,3		
91	AD30	PCI Adress & Data Bus line	IO-3,3		
92	USB1P	USB Data+ Port1	I/O - DP		int. PD 15k
93	PCIRST#	PCI Bus Reset	O-3,3		
94	AD31	PCI Adress & Data Bus line	IO-3,3		
95	INTC#	PCI BUS Interrupt Reauest C	I-3,3	PU 8k2 3,3V	
96	INTD#	PCI BUS Interrupt Reauest D	I-3,3	PU 8k2 3,3V	
97	INTA#	PCI BUS Interrupt Reauest A	I-3,3	PU 8k2 3,3V	
98	INTB#	PCI BUS Interrupt Reauest B	I-3,3	PU 8k2 3,3V	
99	GND	Ground	PWR		
100	GND	Ground	PWR		

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Signal Descriptions (cont'd)

X2

Pin	Signal	Description	Type	PU/PD	Comment
1	GND	Ground	PWR	-	-
2	GND	Ground	PWR	-	-
3	SD14	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
4	SD15	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
5	SD13	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
6	MASTER#	ISA 16-Bit Master	I-5	PU 330R 5V	int. PU 50k 5V in
7	SD12	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
8	DREQ7	ISA DMA Request 7	I-5	PU 4k7 5V	int. PD 50k
9	SD11	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
10	DACK7#	ISA DMA Acknowledge 7	IO-5	PU 4k7 5V	int. PU 50k 5V in
11	SD10	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
12	DREQ6	ISA DMA Request 6	I-5	PU 4k7 5V	int. PD 50k
13	SD9	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
14	DACK6#	ISA DMA Acknowledge 6	IO-5	PU 4k7 5V	int. PU 50k 5V in
15	SD8	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
16	DREQ5	ISA DMA Request 5	I-5	PU 4k7 5V	int. PD 50k
17	MEMW#	ISA Memory Write	IO-5	PU 4k7 5V	int. PU 50k 5V in
18	DACK5#	ISA DMA Acknowledge 5	IO-5	PU 4k7 5V	int. PU 50k 5V in
19	MEMR#	ISA Memory Read	IO-5	PU 4k7 5V	int. PU 50k 5V in
20	DREQ0	ISA DMA Request 0	I-5	PU 4k7 5V	int. PD 50k
21	LA17	ISA Address Bus (SA17)	O-5	PU 4k7 5V	-
22	DACK0#	ISA DMA Acknowledge 0	IO-5	PU 4k7 5V	int. PU 50k 5V in
23	LA18	ISA Address Bus (SA18)	O-5	PU 4k7 5V	-
24	IRQ14	ISA Interrupt Request 14 / ROMChip Select	IO-5	PU 4k7 5V	int. PU 50k 5V in
25	LA19	ISA Address Bus (SA19)	O-5	PU 4k7 5V	-
26	IRQ15	ISA Interrupt Request 15	IO-5	PU 4k7 5V	int. PU 50k 5V in
27	LA20	ISA Address Bus (SA20)	O-5	PU 4k7 5V	-
28	IRQ12	ISA Interrupt Request 12	IO-5	PU 4k7 5V	int. PU 50k 5V in
29	LA21	ISA Address Bus (SA21)	O-5	PU 4k7 5V	-
30	IRQ11	ISA Interrupt Request 11	IO-5	PU 4k7 5V	int. PU 50k 5V in
31	LA22	ISA Address Bus (SA22)	O-5	PU 4k7 5V	-
32	IRQ10	ISA Interrupt Request 10	IO-5	PU 4k7 5V	int. PU 50k 5V in
33	LA23	ISA Address Bus (SA23)	O-5	PU 4k7 5V	
34	IO16#	ISA 16-Bit I/O Access	I-5	PU 330R 5V	int. PU 50k 5V in
35	GND	Ground	PWR	-	-
36	GND	Ground	PWR	-	-
37	SBHE#	ISA System Byte High Enable	IO-5	PU 4k7 5V	int. PU 50k 5V in
38	M16#	ISA 16-Bit Memory Access	IO-5	PU 330R 5V	int. PU 50k 5V in
39	SA0	ISA Address Bus	O-5	PU 4k7 5V	-
40	OSC	ISA Oscillator (CLK_ISA14#)	O-3,3	-	-
41	SA1	ISA Address Bus	O-5	PU 4k7 5V	-
42	BALE	ISA Buffer Address Latch Enable	IO-5	PD 4k7	int. PU 50k 5V in
43	SA2	ISA Address Bus	O-5	PU 4k7 5V	
44	TC	ISA Terminal Count	IO-5	PD 4k7	int. PU 50k 5V in
45	SA3	ISA Address Bus	O-5	PU 4k7 5V	-
46	DACK2#	ISA DMA Acknowledge 2	IO-5	PU 4k7 5V	int. PU 50k 5V in
47	SA4	ISA Address Bus	O-5	PU 4k7 5V	-
48	IRQ3	ISA Interrupt Request 3	IO-5	PU 4k7 5V	int. PU 50k 5V in
49	SA5	ISA Address Bus	O-5	PU 4k7 5V	-
50	IRQ4	ISA Interrupt Request 4	IO-5	PU 4k7 5V	int. PU 50k 5V in

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Signal Descriptions (cont'd)

X2

Pin	Signal	Description	Type	PU/PD	Comment
51	5VCC	Power +5V	PWR	-	-
52	5VCC	Power +5V	PWR	-	-
53	SA6	ISA Address Bus	O-5	PU 4k7 5V	-
54	IRQ5	ISA Interrupt Request 5	IO-5	PU 4k7 5V	int. PU 50k 5V in
55	SA7	ISA Address Bus	O-5	PU 4k7 5V	-
56	IRQ6	ISA Interrupt Request 6	IO-5	PU 4k7 5V	int. PU 50k 5V in
57	SA8	ISA Address Bus	O-5	PU 4k7 5V	-
58	IRQ7	ISA Interrupt Request 7	IO-5	PU 4k7 5V	int. PU 50k 5V in
59	SA9	ISA Address Bus	O-5	PU 4k7 5V	-
60	SYSCLK	ISA Bus Clock (CLK_SYS_ISA)	O-3,3	-	-
61	SA10	ISA Address Bus	O-5	PU 4k7 5V	-
62	REFSH#	ISA System Refresh Control	IO-5	PU 1k 5V	int. PU 50k 5V in
63	SA11	ISA Address Bus	O-5	PU 4k7 5V	-
64	DREQ1	ISA DMA Request 1	I-5	PU 4k7 5V	int. PD 50k
65	SA12	ISA Address Bus	O-5	PU 4k7 5V	-
66	DACK1#	ISA DMA Acknowledge 1	IO-5	PU 4k7 5V	int. PU 50k 5V in
67	GND	Ground	PWR	-	-
68	GND	Ground	PWR	-	-
69	SA13	ISA Address Bus	O-5	PU 4k7 5V	-
70	DREQ3	ISA DMA Request 3	I-5	PU 4k7 5V	int. PD 50k
71	SA14	ISA Address Bus	O-5	PU 4k7 5V	-
72	DACK3#	ISA DMA Acknowledge 3	IO-5	PU 4k7 5V	int. PU 50k 5V in
73	SA15	ISA Address Bus	O-5	PU 4k7 5V	-
74	IOR#	ISA I/O Read	IO-5	PU 4k7 5V	int. PU 50k 5V in
75	SA16	ISA Address Bus	O-5	PU 4k7 5V	-
76	IOW#	ISA I/O Write	IO-5	PU 4k7 5V	int. PU 50k 5V in
77	SA18	ISA Address Bus	O-5	PU 4k7 5V	-
78	SA17	ISA Address Bus	O-5	PU 4k7 5V	-
79	SA19	ISA Address Bus	O-5	PU 4k7 5V	-
80	SMEMR#	ISA System Memory Read	IO-5	PU 4k7 5V	int. PU 50k 5V in
81	IOCHRDY	ISA I/O Channel Ready	IO-5	PU 1k 5V	int. PU 50k 5V in
82	AEN	ISA Address Enable	IO-5	PD 47k	int. PU 50k 5V in
83	5VCC	Power +5V	PWR	-	-
84	5VCC	Power +5V	PWR	-	-
85	SD0	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
86	SMEMW#	ISA System Memory Write	IO-5	PU 4k7 5V	int. PU 50k 5V in
87	SD2	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
88	SD1	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
89	SD3	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
90	NOWS#	ISA No Wait Staits	I-5	PU 330R 5V	int. PU 50k 5V in
91	DREQ2	ISA DMA Request 2	I-5	PU 4k7 5V	int. PD 50k
92	SD4	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
93	SD5	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
94	IRQ9	ISA Interrupt Request 9	IO-5	PU 4k7 5V	int. PU 50k 5V in
95	SD6	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
96	SD7	ISA Data Bus	IO-5	PU 4k7 5V	int. PU 50k 5V in
97	IOCHK#	ISA I/O Channel Check	I-5	PU 4k7 5V	int. PU 50k 5V in
98	RSTDRV	ISA Reset	O-5	-	-
99	GND	Ground	PWR	-	-
100	GND	Ground	PWR	-	-

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Signal Descriptions (cont'd)

X3

Pin	Signal	Description	Type	PU/PD	Comment
1	GND	Ground	PWR	-	-
2	GND	Ground	PWR	-	-
3	R	Analog Video Out RGB - Red Channel	OA	PD 150R	-
4	B	Analog Video Out RGB - Blue Channel	OA	PD 150R	-
5	HSY	Horizontal Synchronization Pulse	O-3,3	-	-
6	G	Analog Video Out RGB - Green Channel	OA	PD 150R	-
7	VSY	Vertical Synchronization Pulse	O-3,3	-	-
8	DDCK	Display Data Channel Clock	IO-5	PU 2k2 3,3V	-
9	DETECT#	Panel Hot-Plug Detection	NC		-
10	DDDA	Display Data Channel Data	IO-5	PU 2k2 3,3V	-
11	LCD16	Second LVDS Channel Data Txclk -	O - DP	-	NC on ETX-AT-N270-18
12	LCD18	Second LVDS Channel Data Txout 3-	O - DP	-	NC on ETX-AT-N270-18
13	LCD17	Second LVDS Channel Data Txclk +	O - DP	-	NC on ETX-AT-N270-18
14	LCD19	Second LVDS Channel Data Txout 3+	O - DP	-	NC on ETX-AT-N270-18
15	GND	Ground	PWR	-	-
16	GND	Ground	PWR	-	-
17	LCD13	Second LVDS Channel Data Txout 1+	O - DP	-	NC on ETX-AT-N270-18
18	LCD15	Second LVDS Channel Data Txout 2+	O - DP	-	NC on ETX-AT-N270-18
19	LCD12	Second LVDS Channel Data Txout 1-	O - DP	-	NC on ETX-AT-N270-18
20	LCD14	Second LVDS Channel Data Txout 2-	O - DP	-	NC on ETX-AT-N270-18
21	GND	Ground	PWR	-	-
22	GND	Ground	PWR	-	-
23	LCD8	First LVDS Channel Data Txout 3-	O - DP	-	NC on ETX-AT-N270-18
24	LCD11	Second LVDS Channel Data Txout 0+	O - DP	-	-
25	LCD9	First LVDS Channel Data Txout 3+	O - DP	-	NC on ETX-AT-N270-18
26	LCD10	Second LVDS Channel Data Txout 0-	O - DP	-	-
27	GND	Ground	PWR	-	-
28	GND	Ground	PWR	-	-
29	LCD4	First LVDS Channel Data Txout 2-	O - DP	-	-
30	LCD7	First LVDS Channel Data Txclk +	O - DP	-	-
31	LCD5	First LVDS Channel Data Txout 2+	O - DP	-	-
32	LCD6	First LVDS Channel Data Txclk -	O - DP	-	-
33	GND	Ground	PWR	-	-
34	GND	Ground	PWR	-	-
35	LCD1	First LVDS Channel Data Txout 0+	O - DP	-	-
36	LCD3	First LVDS Channel Data Txout 1+	O - DP	-	-
37	LCD0	First LVDS Channel Data Txout 0-	O - DP	-	-
38	LCD2	First LVDS Channel Data Txout 1-	O - DP	-	-
39	5VCC	Power +5V	PWR	-	-
40	5VCC	Power +5V	PWR	-	-
41	JILI_DAT	JILI I2C Data Signal	IO-3,3	PU 10k 3,3V	-
42	LTGIO0	Display Backlight Control	O-5	-	-
43	JILI_CLK	JILI I2C Clock Signal	IO-3,3	PU 10k 3,3V	-
44	BLON#	Display Backlight On	O-5	-	-
45	BIASON	Display Contrast	NC	-	-
46	DIGON	Display Power On	O-5	-	-
47	COMP	Composite Video / SCART Blue	OA	-	-
48	Y	S-Video Luminance / SCART Red	OA	-	-
49	SYNC	Composite Sync	NC	-	-
50	C	S-Video Chrominance / SCART Green	OA	-	-

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Signal Descriptions (cont'd)

X3

Pin	Signal	Description	Type	PU/PD	Comment
51	LPT | FLPY#	LPT / Floppy Interface Select	IO-3,3	PU 10k 3,3V	-
52	RSV	-	NC	-	-
53	5VCC	Power +5V	PWR	-	-
54	GND	Ground	PWR	-	-
55	STB# | RSV	LPT Strobe Signal	O-5	-	-
56	AFD# | DENSEL	LPT Automatic Feed / Floppy Density Select	O-5	-	-
57	RSV	-	NC	-	-
58	PD7 | RSV	LPT Data Bus D7	IO-5	-	-
59	IRRX	Infrared Receive	I-5	-	-
60	ERR# | HDSEL#	LPT Error / Floppy Head Select	IO-5	-	-
61	IRTX	Infrared Transmit	O-5	-	-
62	PD6 | RSV	LPT Data Bus D6	IO-5	-	-
63	RXD2	Data Receive COM2	I-5	-	-
64	INIT# | DIR#	LPT Initiate / Floppy Direction	O-5	-	-
65	GND	Ground	PWR	-	-
66	GND	Ground	PWR	-	-
67	RTS2#	Request to Send COM2	O-5	-	-
68	PD5 | RSV	LPT Data Bus D5	IO-5	-	-
69	DTR2#	Data Terminal Ready COM2	O-5	-	-
70	SLIN# | STEP#	LPT Select / Floppy Motor Step	O-5	-	-
71	DCD2#	Data Carrier Detect COM2	I-5	-	-
72	PD4 | DSKCHG#	LPT Data Bus D4	IO-5	-	-
73	DSR2#	Data Set Ready COM2	I-5	-	-
74	PD3 | RDATA#	LPT Data Bus D3	IO-5	-	-
75	CTS2#	Clear to Send COM2	I-5	-	-
76	PD2 | WP#	LPT Data Bus D2	IO-5	-	-
77	TXD2	Data Transmit COM2	O-5	PU 4k7 5V	-
78	PD1 | TRK0#	LPT Data Bus D1	IO-5	-	-
79	RI2#	Ring Indicator COM2	I-5	-	-
80	PD0 | INDEX#	LPT Data Bus D0	IO-5	-	-
81	5VCC	Power +5V	PWR	-	-
82	5VCC	Power +5V	PWR	-	-
83	RXD1#	Data Receive COM1	I-5	-	-
84	ACK# | DRV	LPT Acknowledge / Floppy Drive Select	IO-5	-	-
85	RTS1#	Request to Send COM1	O-5	PD 4k7	-
86	BUSY# | MOT	LPT Busy / Floppy Motor Select	IO-5	-	-
87	DTR1#	Data Terminal Ready COM1	O-5	-	-
88	PE | WDATA#	LPT Paper Empty / Floppy Raw Write Data	IO-5	-	-
89	DCD1#	Data Carrier Detect COM1	I-5	-	-
90	SLCT#|WGATE#	LPT Power On / Floppy Write Enable	IO-5	-	-
91	DSR1#	Data Set Ready COM1	I-5	-	-
92	MSCLK	Mouse Clock	O-5	PU 4k7 5V	-
93	CTS1#	Clear to Send COM1	I-5	-	-
94	MSDAT	Mouse Data	O-5	PU 4k7 5V	-
95	TXD1	Data Transmit COM1	O-5	PU 4k7 5V	-
96	KBCLK	Keyboard Clock	O-5	PU 4k7 5V	-
97	RI1#	Ring Indicator COM1	I-5	-	-
98	KBDAT	Keyboard Data	O-5	PU 4k7 5V	-
99	GND	Ground	PWR	-	-
100	GND	Ground	PWR	-	-

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Signal Descriptions (cont'd)

X4

Pin	Signal	Description	Type	PU/PD	Comment
1	GND	Ground	PWR	-	-
2	GND	Ground	PWR	-	-
3	5V_SB	Supply of internal suspend Circuit	PWR	-	-
4	PWGIN	Power Good / Reset Input	I-3,3	-	-
5	PS_ON	Power Supply On	O-5	PU 4k7 3,3VSB	-
6	SPEAKER	Speaker Output	O-5	PU 1k 5V	-
7	PWRBTN#	Power Button	I-5	PU 10k 3,3VSB	-
8	BATT	Battery Supply	PWR	-	-
9	KBINH	Keyboard Inhibit Control Input	I-5	PU 8k2 5V	-
10	LILED	Ethernet Link LED	O-3,3	-	-
11	RSMRST#	Resume Reset input	I-3,3	PU 20k 3,3VSB	-
12	ACTLED	Ethernet Activity LED	O-3,3	-	-
13	ROMKBCS#	-	NC	-	-
14	SPDLED	Ethernet Speed LED	O-3,3	-	-
15	EXT_PRG	-	NC	-	-
16	I2CLK	I2C Bus Clock	O-5	PU 10k 3,3V	
17	5VCC	Power +5V	PWR	-	-
18	5VCC	Power +5V	PWR	-	-
19	OVCR#	Over Current Detect for USB	I-3,3	PU 4k7 3,3VSB	-
20	GPCS#	-	NC	-	-
21	EXTSMI#	System Management Interrupt Input	I-3,3	PU 8k2 3,3V	-
22	I2DAT	I2C Bus Data	IO-5	PU 10k 3,3V	-
23	SMBCLK	SM Bus Clock	O-3,3	PU 2k2 3,3V	-
24	SMBDATA	SM Bus Data	IO-3,3	PU 2k2 3,3V	-
25	S_CS3#	Secondary IDE Chip Select Channel 1	O-3,3	-	-
26	SMBALERT	SM Bus Alert	I-3,3	PU 10k 3,3VSB	-
27	S_CS1#	Secondary IDE Chip Select Channel 0	O-3,3	-	-
28	DASP_S	-	I-3,3	PD 10k	-
29	S_A2	Secondary IDE Adress Bus	O-3,3	-	-
30	P_CS3#	Primary IDE Chip Select Channel 1	O-3,3	-	-
31	S_A0	Secondary IDE Adress Bus	O-3,3	-	-
32	P_CS1#	Primary IDE Chip Select Channel 0	O-3,3	-	-
33	GND	Ground	PWR	-	-
34	GND	Ground	PWR	-	-
35	PDIAG_S	80-conductor IDE cable Channel 1	I-3,3	-	-
36	P_A2	Primary IDE Adress Bus	O-3,3	-	-
37	S_A1	Secondary IDE Adress Bus	O-3,3	-	-
38	P_A0	Primary IDE Adress Bus	O-3,3	-	-
39	S_INTRQ	Secondary IDE Interrupt Request	I-3,3	PD 10k	-
40	P_A1	Primary IDE Adress Bus	O-3,3	-	-
41	BATLOW#	Battery Low	I-3,3		-
42	GPE1#	-	NC	-	-
43	S_AK#	Secondary IDE DMA Acknowledge	O-3,3	-	-
44	P_INTRQ	Primary IDE Interrupt Reqeuest	I-3,3	PU 8k2 3,3V	-
45	S_RDY	Secondary IDE Ready	I-3,3	PU 4k7 3,3V	-
46	P_AK#	Primary IDE DMA Acknowledge	O-3,3	-	-
47	S_IOR#	Secondary IDE IO Read	O-3,3	-	-
48	P_RDY	Primary IDE Ready	I-3,3	PU 4k7 3,3V	-
49	5VCC	Power +5V	PWR	-	-
50	5VCC	Power +5V	PWR	-	-

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Signal Descriptions (cont'd)

X4

Pin	Signal	Description	Type	PU/PD	Comment
51	S_IOW#	Secondary IDE IO Write	O-3,3	-	-
52	P_IOR#	Primary IDE IO Read	O-3,3	-	-
53	S_DRQ	Secondary IDE DMA Request	I-3,3	-	-
54	P_IOW#	Primary IDE IO Write	O-3,3	-	-
55	S_D15	Secondary IDE Data Bus	IO	-	-
56	P_DRQ	Primary IDE DMA Request	I-3,3	-	-
57	S_D0	Secondary IDE Data Bus	IO	-	-
58	P_D15	Primary IDE Data Bus	IO	-	-
59	S_D14	Secondary IDE Data Bus	IO	-	-
60	P_D0	Primary IDE Data Bus	IO	-	-
61	S_D1	Secondary IDE Data Bus	IO	-	-
62	P_D14	Primary IDE Data Bus	IO	-	-
63	S_D13	Secondary IDE Data Bus	IO	-	-
64	P_D1	Primary IDE Data Bus	IO	-	-
65	GND	Ground	PWR	-	-
66	GND	Ground	PWR	-	-
67	S_D2	Secondary IDE Data Bus	IO	-	-
68	P_D13	Primary IDE Data Bus	IO	-	-
69	S_D12	Secondary IDE Data Bus	IO	-	-
70	P_D2	Primary IDE Data Bus	IO	-	-
71	S_D3	Secondary IDE Data Bus	IO	-	-
72	P_D12	Primary IDE Data Bus	IO	-	-
73	S_D11	Secondary IDE Data Bus	IO	-	-
74	P_D3	Primary IDE Data Bus	IO	-	-
75	S_D4	Secondary IDE Data Bus	IO	-	-
76	P_D11	Primary IDE Data Bus	IO	-	-
77	S_D10	Secondary IDE Data Bus	IO	-	-
78	P_D4	Primary IDE Data Bus	IO	-	-
79	S_D5	Secondary IDE Data Bus	IO	-	-
80	P_D10	Primary IDE Data Bus	IO	-	-
81	5VCC	Power +5V	PWR	-	-
82	5VCC	Power +5V	PWR	-	-
83	S_D9	Secondary IDE Data Bus	IO	-	-
84	P_D5	Primary IDE Data Bus	IO	-	-
85	S_D6	Secondary IDE Data Bus	IO	-	-
86	P_D9	Primary IDE Data Bus	IO	-	-
87	S_D8	Secondary IDE Data Bus	IO	-	-
88	P_D6	Primary IDE Data Bus	IO	-	-
89	GPE2#	-	NC	-	-
90	CBLID_P#	80-conductor IDE cable Channel 0	I-3,3	-	-
91	RXD#	Ethernet Receive Differential Signal (RXD-)	I - DP	-	-
92	P_D8	Primary IDE Data Bus	IO	-	-
93	RXD	Ethernet Receive Differential Signal (RXD+)	I - DP	-	-
94	S_D7	Secondary IDE Data Bus	IO	-	-
95	TXD#	Ethernet Transmit Differential Signal (TXD-)	O -DP	-	-
96	P_D7	Primary IDE Data Bus	IO	-	int. PD 11k5
97	TXD	Ethernet Transmit Differential Signal (TXD+)	O -DP	-	-
98	HDRST#	Hard Drive Reset	O-3,3	-	-
99	GND	Ground	PWR	-	-
100	GND	Ground	PWR	-	-

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Signal Descriptions (cont'd)

Signal Type Legend	
IO-2,5	Bi-directional 2,5 V Input/Output
IO-3,3	Bi-directional 3,3 V Input/Output
IO-5	Bi-directional 5 V Input/Output
I-3,3	3,3 V Input
I-5	5 V Input
O-2,5	2,5 V Output
O-3,3	3,3 V Output
O-5	5 V Output
IO	Input/Output
OA	Analog Output
I/O - DP	Differential Pair Input/Output
O - DP	Differential Pair Output
I - DP	Differential Pair Input
PWR	Power or Ground
PU	Pull-Up Resistor
PD	Pull-Down Resistor
NC	Not Connected / Reserved

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7 System Resources

7.1 System Memory Map

Address Range (decimal)	Address Range (hex)	Size	Description
(4GB-2MB)	FFE00000 - FFFFFFFF	2 MB	High BIOS Area
(4GB-18MB)-(4GB-17MB-1)	FEE00000 - FEEFFFFF	1 MB	FSB Interrupt Memory Space
(4GB-20MB)-(4GB-19MB-1)	FEC00000 – FECFFFFF	1 MB	APIC Configuration Space
960 K - 1024 K	F0000 - FFFFF	64 KB	System BIOS Area
896 K - 960 K	E0000 - EFFFF	64 KB	Extended System BIOS Area
768 K - 896 K	C0000 - DFFFF	128 KB	PCI expansion ROM area C0000 - CEFFF: Onboard VGA BIOS CF000 - D0FFF: PXE option ROM when onboard LAN boot ROM is enabled.
640 K - 768 K	A0000 - BFFFF	128 KB	Video Buffer & SMM space
0 K - 640 K	00000 - 9FFFF	640 KB	DOS Area

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7.2 I/O Address Map

Address (hex)	Size	Description
0000 – 001F	32 bytes	DMA controller
0020 – 0021	2 bytes	Interrupt controller
0024 – 0025	2 bytes	Interrupt controller
0028 – 0029	2 bytes	Interrupt controller
002C – 002D	2 bytes	Interrupt controller
002E - 002F	2 bytes	LPC SIO
0030 – 0031	2 bytes	Interrupt controller
0034 – 0035	2 bytes	Interrupt controller
0038 – 0039	2 bytes	Interrupt controller
003C – 003D	2 bytes	Interrupt controller
0040 – 0043	4 bytes	Counter/Timer
0048 – 004B	4 bytes	Counter/Timer
004E – 004F	2 bytes	TPM configuration port
0050 – 0053	4 bytes	Counter/Timer
0060	1 byte	Keyboard controller
0061	1 byte	NMI, speaker control
0063	1 byte	NMI controller
0064	1 byte	Keyboard controller
0065	1 byte	NMI controller
0067	1 byte	NMI controller
0070 – 0071	2 bytes	Real time clock controller
0072 – 0073	2 bytes	Real time clock controller
0074 – 0075	2 bytes	Real time clock controller
0076 – 0077	2 bytes	Real time clock controller
0080 – 0091	18 bytes	DMA controller
0092	1 bytes	Reset Generator
0093 – 009F	13 bytes	DMA controller
00A0 – 00A1	2 bytes	Interrupt controller
00A4 – 00A5	2 bytes	Interrupt controller
00A8 – 00A9	2 bytes	Interrupt controller
00AC – 00AD	2 bytes	Interrupt controller
00B0 – 00B1	2 bytes	Interrupt controller
00B2 – 00B3	2 bytes	Power Management
00B4 – 00B5	2 bytes	Interrupt controller
00B8 – 00B9	2 bytes	Interrupt controller
00BC – 00BD	2 bytes	Interrupt controller
00C0 – 00DF	32 bytes	DMA controller
00F0 – 00FF	16 bytes	Numeric processor
0170 – 0177	8 bytes	Secondary IDE controller
01F0 – 01F7	8 bytes	Primary IDE controller
0274 – 0277	4 bytes	ISA PnP read port
0278 – 027F	8 bytes	LPT2
0290 – 029F	16 bytes	Onboard Sensor index(0x295)/data port (0x296)
02E8 – 02EF	8 bytes	COM4/Video

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

I/O Address Map (cont'd)

Address (hex)	Size	Description
02F8 – 02FF	8 bytes	COM2
0376 – 0377	2 bytes	Secondary IDE controller
0378 – 037F	8 bytes	LPT1
03B0 – 03BB	12 bytes	Video (monochrome)
03BC – 03BF	4 bytes	LPT3
03C0 – 03DF	32 bytes	Video (VGA†)
03E8 – 03EF	8 bytes	COM3
03F0 – 03F5, 03F7	7 bytes	Diskette controller
03F6 – 03F7	2 bytes	Primary IDE controller
03F8 – 03FF	8 bytes	COM1
0400 – 041F	32 bytes	Onboard SMBus control registers
0480 – 04BF	64 bytes	GPIO control registers
04D0 – 04D1	2 bytes	Edge/level triggered PIC
0800 – 087F	128 bytes	ACPI control registers
0A79 – 0A79	1 bytes	ISA PnP read data Port
0CF8 – 0CFF*	8 bytes	PCI configuration registers
0CF9**	1 byte	Reset control register
04700 – 0470F	16 bytes	TPM control registers
0C4802-0C49F	32Byte	USB Host Controller
0C800-0C81F	32Byte	USB Host Controller
0C880-0C89F	32Byte	USB Host Controller
0CC00-0CC1F	32Byte	USB Host Controller
0CC80-CC87	8Byte	Video
0D480-0D48F	16Byte	PCI IDE Controller
0D800-0D803	4Byte	PCI IDE Controller
0DC00-0DC03	4Byte	PCI IDE Controller
0DC80-ODC87	8Byte	PCI IDE Controller
0FFA0-0FFAF	16Byte	Serial ATA Storage Controller

NOTE:

* DWORD access only
** Byte access only

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7.3 Interrupt Request (IRQ) Lines

PIC Mode

IRQ#	Typical Interrupt Resource	Connected to Pin	Available
0	Counter 0	N/A	No
1	Keyboard controller	N/A	No
2	Cascade interrupt from slave PIC	N/A	No
3	Serial Port 2 (COM2) / PCI	IRQ3 via SERIRQ	Note (1)
4	Serial Port 1 (COM1) / PCI	IRQ4 via SERIRQ	Note (1)
5	Parallel Port 2 (LPT2) / PCI	IRQ5 via SERIRQ	Note (1)
6	Floppy Drive Controller	IRQ6 via SERIRQ	No
7	Parallel Port 1 (LPT1) / PCI	IRQ7 via SERIRQ,	Note (1)
8	Real-time clock	N/A	No
9	SCI / PCI	IRQ9 via SERIRQ	Note (1)
10	PCI	IRQ10 via SERIRQ	Note (1)
11	PCI	IRQ11 via SERIRQ	Note (1)
12	PS/2 Mouse / PCI	IRQ12 via SERIRQ	Note (1)
13	Math Processor	N/A	No
14	Primary IDE controller / PCI	IRQ14 via SERIRQ	Note (1)
15	Secondary IDE controller / PCI	IRQ15 via SERIRQ	Note (1)

NOTE: (1) These IRQs can be used for PCI devices when onboard device is disabled.

APIC Mode

IRQ#	Typical Interrupt Resource	Connected to Pin	Available
0	Counter 0	N/A	No
1	Keyboard controller	N/A	No
2	Cascade interrupt from slave PIC	N/A	No
3	Serial Port 2 (COM2) / PC	IRQ3 via SERIRQ	Note (1)
4	Serial Port 1 (COM1) / PCI	IRQ4 via SERIRQ	Note (1)
5	Parallel Port 2 (LPT2) / PCI	IRQ5 via SERIRQ	Note (1)
6	Floppy Drive Controller	IRQ6 via SERIRQ	No
7	Parallel Port 1 (LPT1) / PCI / ISA	IRQ7 via SERIRQ	Note (1)
8	Real-time clock	N/A No	
9	SCI / PCI	IRQ9 via SERIRQ	Note (1),
10	PCI	IRQ10 via SERIRQ	Note (1)
11	PCI	IRQ11 via SERIRQ	Note (1)
12	PS/2 Mouse / PCI	IRQ12 via SERIRQ	Note (1)
13	Math Processor	N/A	No
14	Primary IDE controller / PCI	IRQ14 via SERIRQ	Note (1)

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

APIC Mode (cont'd)

IRQ#	Typical Interrupt Resource	Connected to Pin	Available
15	Secondary IDE controller / PCI	IRQ15 via SERIRQ	Note (1)
16	N/A	PCI Slot INT A, USB, VGA controller, Audio controller, IDE controller	Yes
17	N/A	PCI Slot INT B, USB	Yes
18	N/A	PCI Slot INT C	Yes
19	N/A	PCI Slot INT D, USB controller	Yes
20	N/A		No
21	N/A		No
22	N/A		No
23	N/A	EHCI, USB	No



(1) These IRQs can be used for PCI devices when an onboard device is disabled.

7.4 PCI Configuration Space Map

Bus #	Device #	Function #	Routing	Description
00h	00h	00h	N/A	Intel 945 GSE GMCH Host-Hub Interface Bridge
00h	02h	00h	Internal	Intel Integrated Graphics Device
00h	02h	01h	Internal	Intel Integrated Graphics Device (Function 1)
00h	1Bh	00h	Internal	High Definition Audio controller
00h	1Ch	00h	Internal	Intel ICH Express Root port
00h	1Dh	00h	Internal	Intel USB UHCI Controller 1
00h	1Dh	01h	Internal	Intel USB UHCI Controller 2
00h	1Dh	02h	Internal	Intel USB UHCI Controller 3
00h	1Dh	03h	Internal	Intel USB UHCI Controller 4
00h	1Dh	07h	Internal	Intel USB EHCI Controller
00h	1Eh	00h	N/A	Intel Hub Interface to PCI Bridge
00h	1Fh	00h	N/A	Intel LPC Interface Bridge
00h	1Fh	01h	Internal	Intel IDE Controller
00h	1Fh	02h	Internal	Intel SATA controller
00h	1Fh	03h	Internal	Intel SMBus Controller
01h	00h	00h	onboard	JMB368 PCI IDE controller
02h	07h	00h	onboard	ITE8888 PCI to ISA Bridge
02h	08h	00h	onboard	Onboard LAN controller

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

7.5 PCI Interrupt Routing Map

PIRQ	A	B	C	D	E	F	G	H
INT Line	INTA	INTB	INTC	INTD				
VGA	X							
UHCI 1	X							
UHCI 2		X						
UHCI 3			X					
UHCI 4				X				
EHCI	X							
SATA			X					
SMBus			X					
Audio	X							
PCI Slot1	INTA	INTB	INTC	INTD				
PCI Slot2	INTB	INTC	INTD	INTA				
PCI Slot3	INTC	INTD	INTA	INTB				
PCI Slot4	INTD	INTA	INTB	INTC				
LAN					INTA			

7.6 System Management Bus (I2C-compatible)

Internally the SMB bus and I2C bus are one and the same. The ICH7-M Southbridge supports SMBDAT and SMBCLK lines that are I2C-compatible.

The X4 connector has pins for both the I2C and SMB bus. Both are connected to the same internal bus: the SMB bus. It is advisable to always connect external I2C devices to the I2C pins and SMB devices to the SMB pins to ensure compatibility with other modules that might support two internal busses (a separate I2C and SMB bus).

Address	Function	Device
2Eh	Super I/O Read/Write	SIO
A0h	Memory SPD	SO-DIMM
D2h	Clock Generator	CLK GEN

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8 BIOS Setup Utility

The following chapter describes basic navigation for the AMI EFI BIOS setup utility.

8.1 Starting the BIOS

To enter the setup screen, follow these steps:

1. Power on the motherboard
2. Press the < Delete > key on your keyboard when you see the following text prompt:

   < Press DEL or Delete to run Setup >

3. After you press the < Delete > key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as Chipset and Power menus.



NOTE: In most cases, the < Delete > key is used to invoke the setup screen. There are several cases that use other keys, such as < F1 >, < F2 >, and so on.

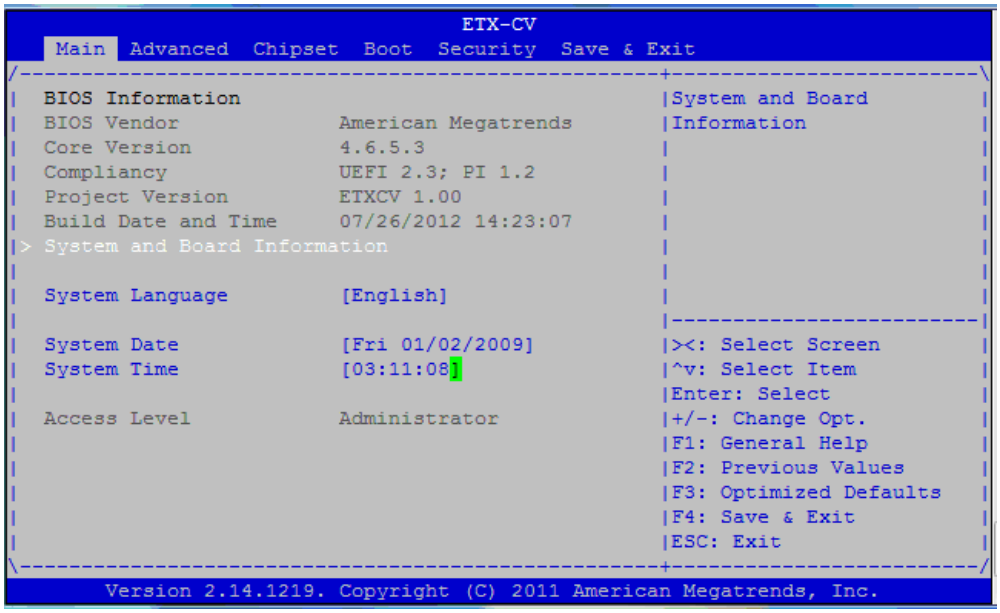
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.1.1 Main Setup Menu

The main BIOS setup menu is the first screen that you can navigate. Each main BIOS setup menu option is described in this user's guide.

The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. "Grayed" options cannot be configured, "Blue" options can be.

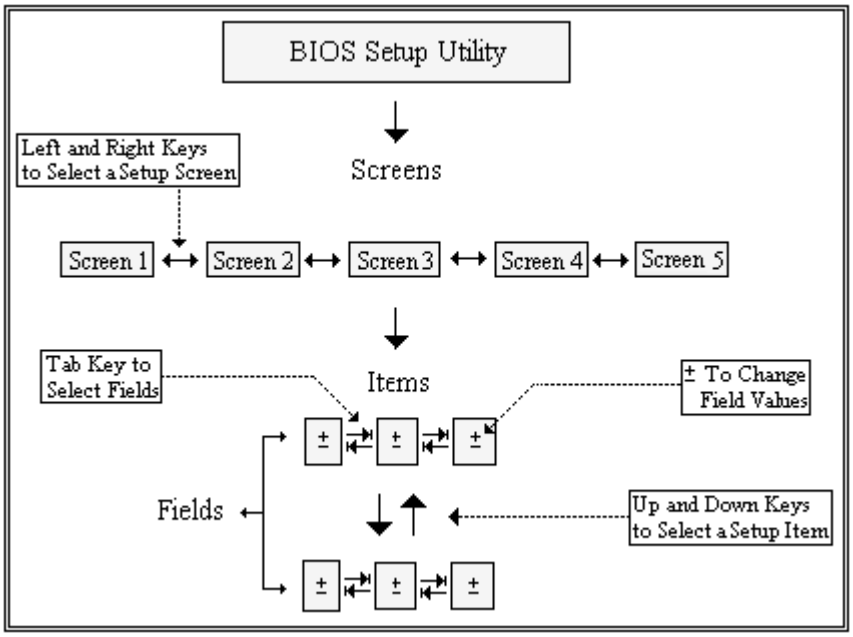
The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.1.2 Navigation

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.
These keys include < F1 >, < F10 >, < Enter >, < ESC >, < Arrow > keys, and so on.

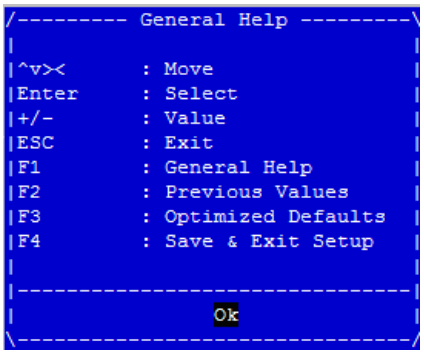


NOTE: There is a hot key legend located in the right frame on most setup screens.

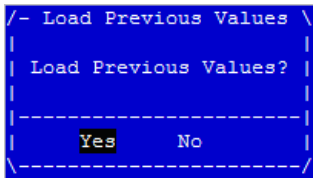
Navigation	
→←	Left/Right The *Left and Right* < Arrow > keys allow you to select a setup screen. For example: Main screen, Advanced screen, Chipset screen, and so on.
↑↓	Up/Down The *Up and Down* < Arrow > keys allow you to select a setup item or sub-screen.
+ −	Plus/Minus The *Plus and Minus* < Arrow > keys allow you to change the field value of a particular setup item. For example: Date and Time.
Tab	The < Tab > key allows you to select setup fields.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Hot Key	Description
Enter	The < Enter > key allows you to display or change the setup option listed for a particular setup item. The < Enter > key can also allow you to display the setup sub-screens.
F1	The < F1 > key allows you to display the *General Help screen*. Press the < F1 > key to open the *General Help screen*.

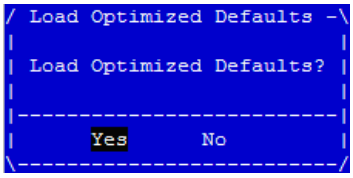


F2	The < F2 > key is the previous values key. It is not displayed on the key legend by default. To set the previous values settings of the BIOS, press the < F2 > key on your keyboard. It is located on the upper row of a standard 101 keyboard. The previous values settings allow the motherboard to boot up with the least amount of options set. This can lessen the probability of conflicting settings.



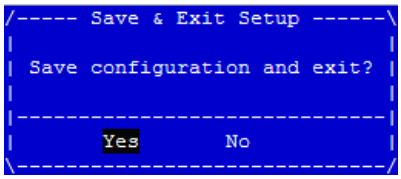
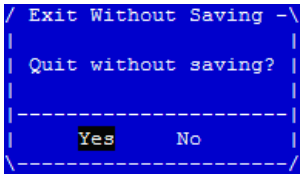
Press the < Enter > key to load previous values. You can also use the < Arrow > key to select *Cancel* and then press the < Enter > key to abort this function and return to the previous screen.

F3	The < F3 > key is the optimized defaults key. To set the optimized defaults settings of the BIOS, press the < F3 > key on your keyboard. It is located on the upper row of a standard 101 keyboard. The previous values settings allow the motherboard to boot up with the least amount of options set. This can lessen the probability of conflicting settings.



Press the < Enter > key to load optimized defaults. You can also use the < Arrow > key to select *Cancel* and then press the < Enter > key to abort this function and return to the previous screen.

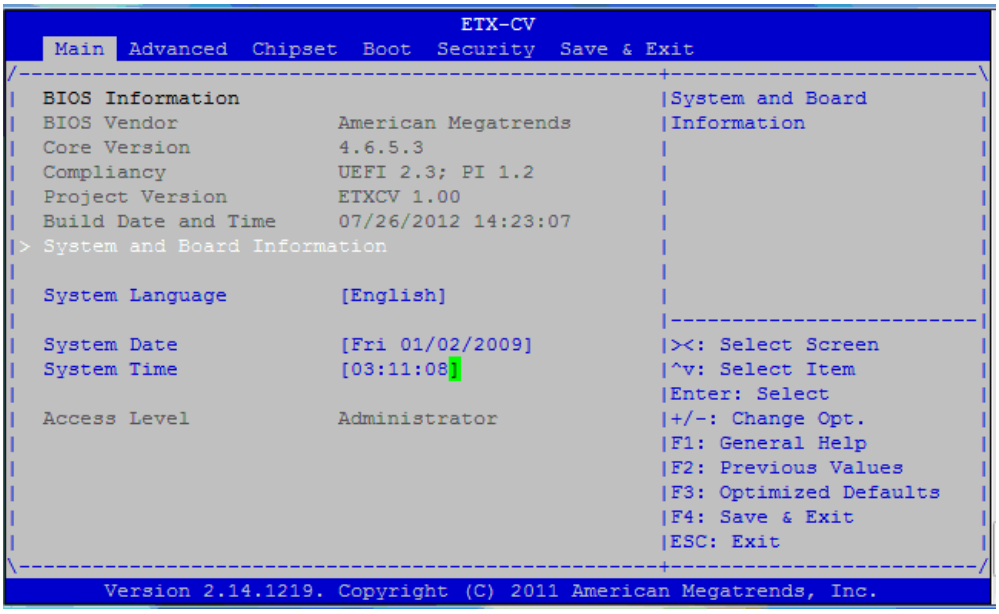
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

F4	The < F4 > key allows you to save any changes you have made and exit Setup. Press the < F4 > key to save your changes. The following screen will appear:  Press the < Enter > key to save the configuration and exit. You can also use the < Arrow > key to select *Cancel* and then press the < Enter > key to abort this function and return to the previous screen.
ESC	The < Esc > key allows you to discard any changes you have made and exit the Setup. Press the < Esc > key to exit the setup without saving your changes. The following screen will appear:  Press the < Enter > key to discard changes and exit. You can also use the < Arrow > key to select *Cancel* and then press the < Enter > key to abort this function and return to the previous screen.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.2 Main Setup

When you first enter the Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the *Main* tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.



8.2.1 System Time/System Date

Use this option to change the system time and date. Highlight *System Time* or *System Date* using the < `Arrow` > keys. Enter new values using the keyboard. Press the < `Tab` > key or the < `Arrow` > keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

NOTE: The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00, and 5:30 P.M. as 17:30:00.

8.2.2 System Time/System Date

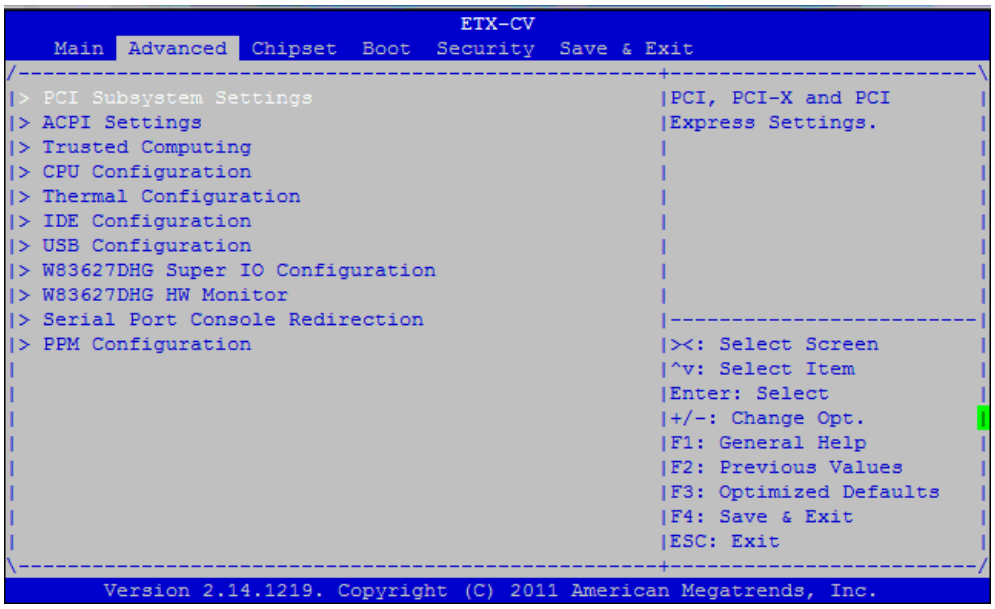
This sub menu reports detailed board information.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.3 Advanced BIOS Setup

Select the *Advanced* tab from the setup screen to enter the Advanced BIOS Setup screen. You can select any of the items in the left frame of the screen, such as SuperIO Configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the < `Arrow` > keys. The Advanced BIOS Setup screen is shown below.

The sub menus are described on the following pages.



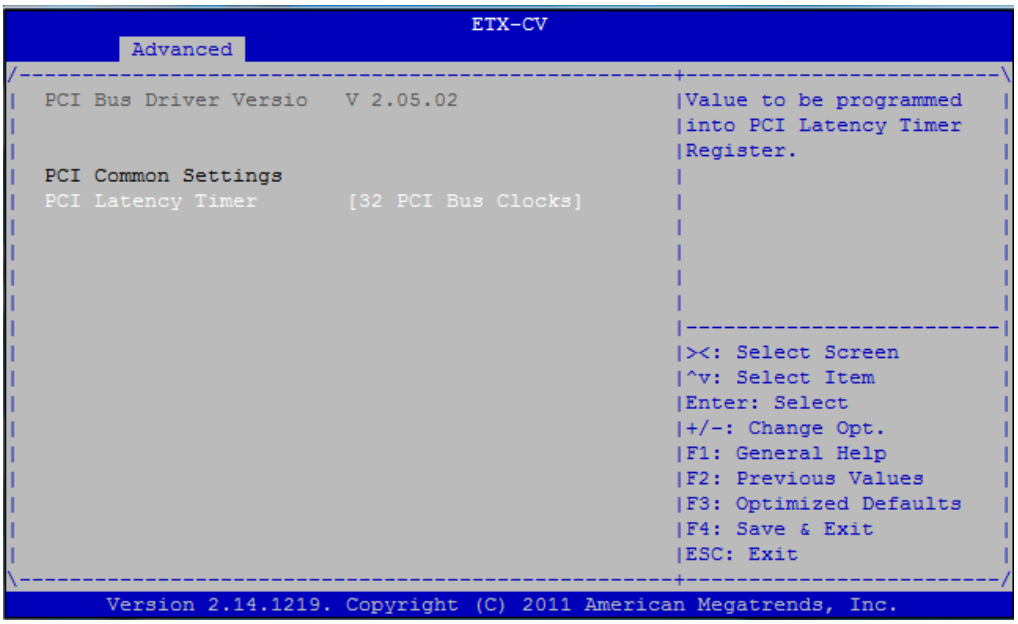


Setting incorrect or conflicting values in Advanced BIOS Setup may cause system malfunctions.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.3.1 PCI Subsystem Settings

You can use this screen to select options for the PCI Subsystem Configuration Settings. Use the up and down < Arrow > keys to select an item. Use the < + > and < - > keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on this page. The screen is shown below.



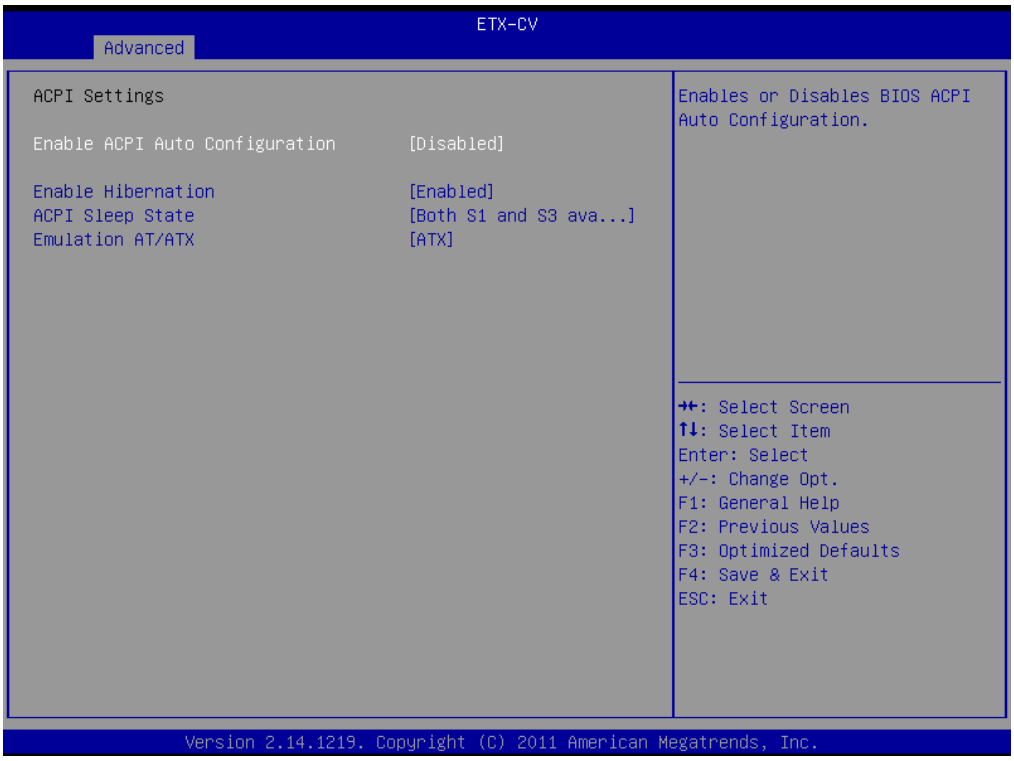
PCI Latency Timer

Value to be programmed into PCI Latency Timer Register.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.3.2 ACPI Settings

You can use this screen to select options for the ACPI configuration settings. Use the up and down < Arrow > keys to select an item. Use the < + > and < - > keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on the following pages. An example of the *ACPI Settings* screen is shown below.



Enable APIC Auto Configuration

BIOS ACPI Auto Configuration. Set this value to Enabled/Disabled.

Enable Hibernation

System ability to Hibernate (OS/S4 Sleep State). Set this value to Enabled/Disabled.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

ACPI Sleep State

S1 only (CPU Stop Clock)

CPU Stop Clock - Under this setting the system enters a low power state instead of being completely shut off. This allows the computer system to boot up in a few seconds.

S3 only (Suspend)

Suspend to RAM - Under this setting the system enters a low power state instead of being completely shut off. This allows the computer system to boot up in a few seconds.

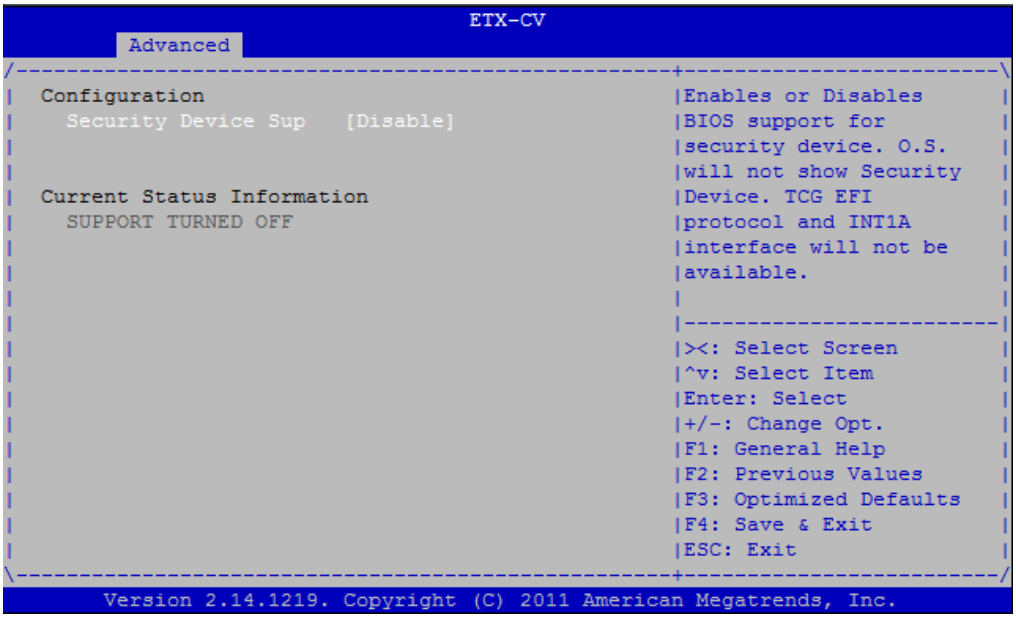
Emulation AT/ ATX

Select Emulation AT or ATX function. If this option is set to Emulation AT, BIOS will report no suspends functions to ACPI OS. In Windows XP, it will cause the OS to show a shutdown message during system shutdown.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.3.3 Trusted Computing

You can use this screen to select options for the Trusted Computing settings. Use the up and down < Arrow > keys to select an item. Use the < + > and < - > keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on the following pages. An example of the Trusted Computing screen is shown below.



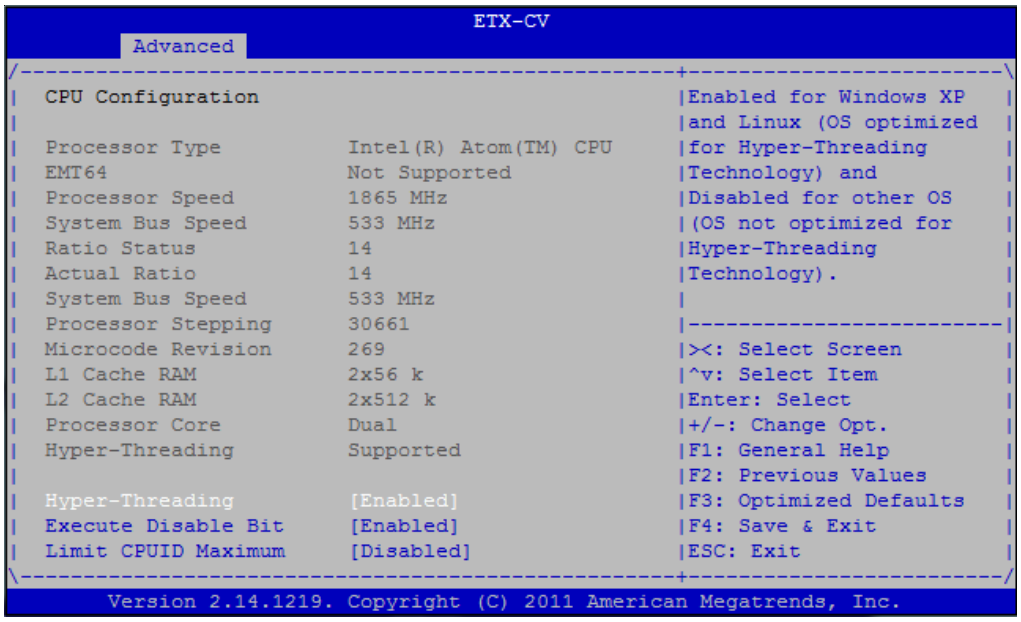
Security Device Support

Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.3.4 CPU Configuration

You can use this screen to select options for the CPU Configuration Settings. Use the up and down < Arrow > keys to select an item. Use the < + > and < - > keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on the following pages. An example of the *CPU Configuration* screen is shown below.



Hyper-Threading Technology

This option enables/disables Intel® Hyper-Threading Technology.

Execute Disable Bit Capability

This is an Intel hardware-based security feature that can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.) . Set this value to Enabled/ Disabled.

Limit CPUID Maximum

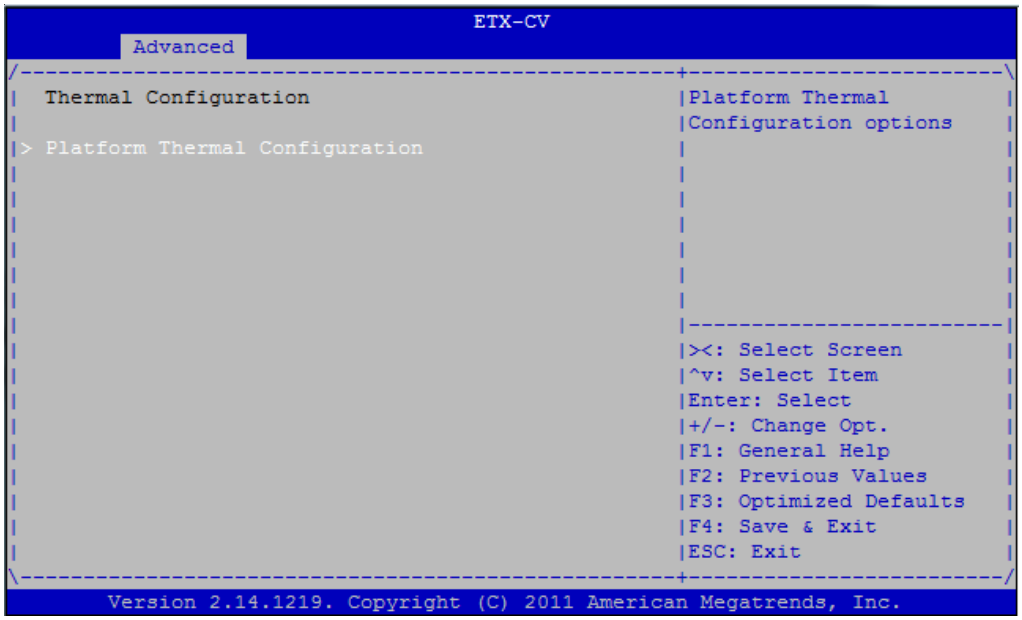
When the computer is boots, the operating system executes its CPUID instruction to identify the processor and its capabilities. Before it can do so, it must first query the processor to find out the highest input value the CPUID recognizes. This determines the kind of basic information CPUID can provide the operating system. This option allows you to circumvent problems with older operating systems.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

When Enabled, the processor will limit the maximum CPUID input value to 03h when queried, even if the processor supports a higher CPUID input value. When Disabled, the processor will return the actual maximum CPUID input value of the processor when queried.

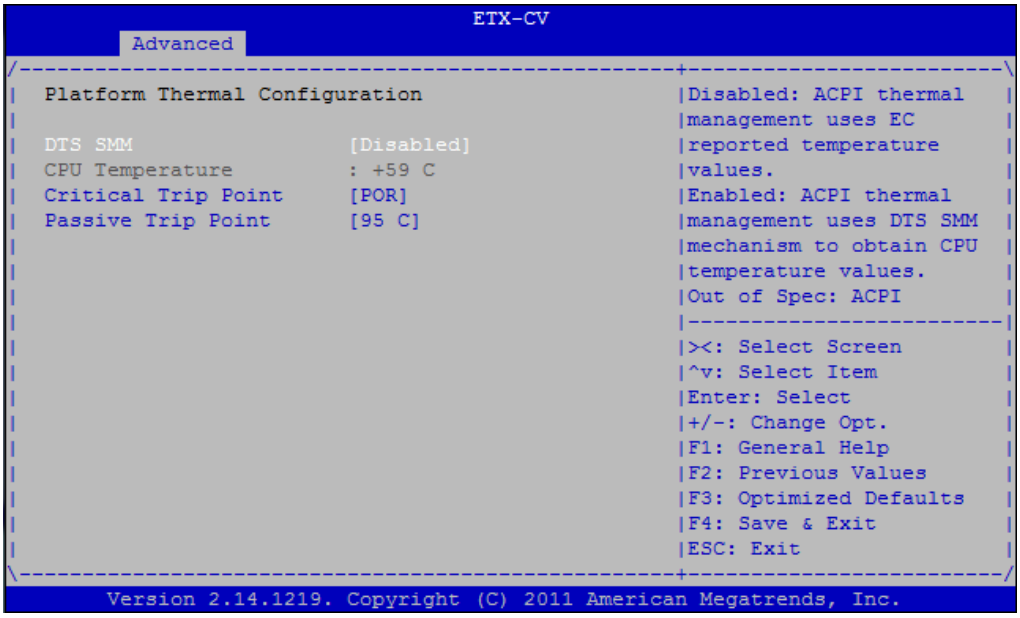
8.3.5 Thermal Configuration

You can use this screen to select options for the Thermal Configuration settings. Use the up and down < Arrow > keys to select an item. Use the < + > and < - > keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on the following pages. An example of the Thermal Configuration screen is shown below.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Platform Thermal



DTS SMM

Enabled ACPI thermal management uses DTS SMM mechanism to obtain CPU temperature values.

CPU Temperature

Display current CPU temperature.

Critical Trip Point

This value controls the temperature of the ACPI Critical Trip Point - the point in which the OS will shut the system off. NOTE: 100C is the Plan of Record (POR) for all Intel mobile processors.

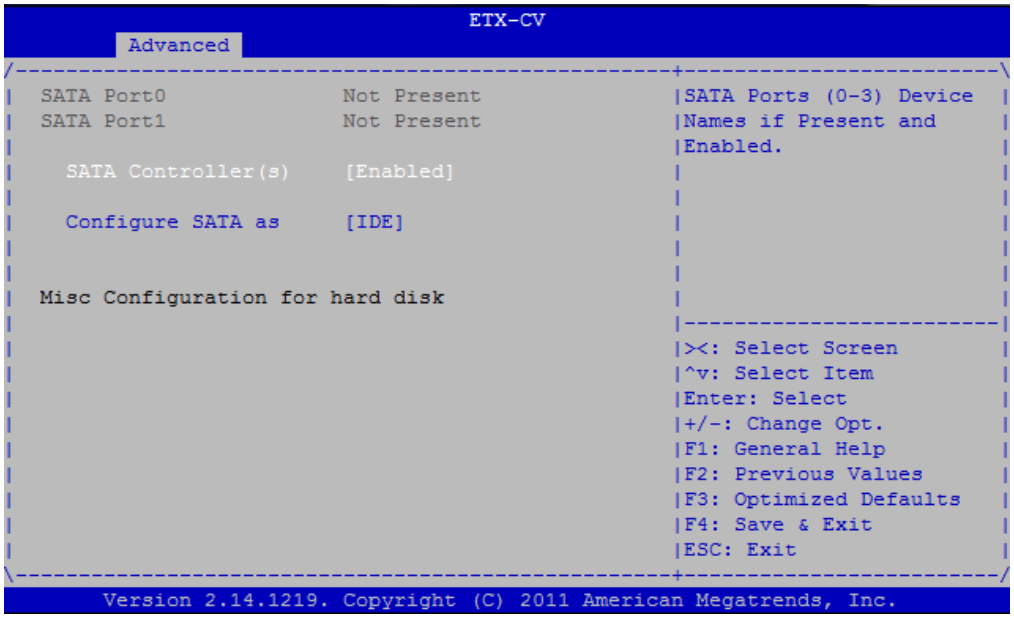
Passive Trip Point

This value controls the temperature of the ACPI Passive Trip Point - the point in which the OS will begin throttling the processor.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.3.6 IDE Configuration

You can use this screen to select options for the IDE Configuration settings. Use the up and down < Arrow > keys to select an item. Use the < + > and < - > keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on the following pages. An example of the IDE Configuration screen is shown below.

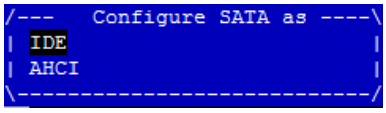


SATA Controller

Enabled/Disable SATA Controller

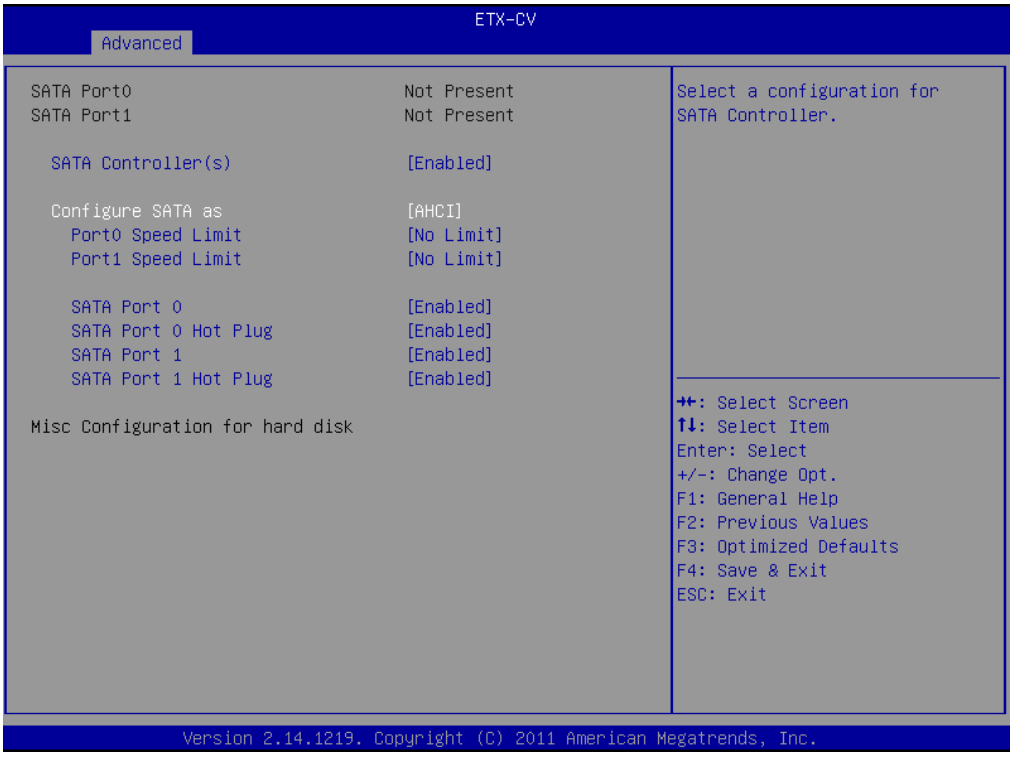
Configure SATA as

Select a configuration IDE/AHCI for SATA Controller.



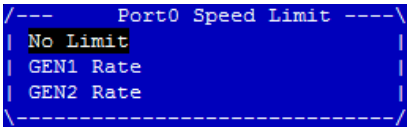
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Configure SATA as "AHCI"



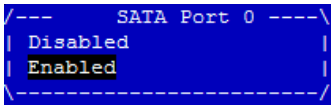
Port0/1 Speed Limit

Select Port0/1 AHCI Speed Limit.



SATA Port 0/1

Enable or Disable SATA Port 0/1.

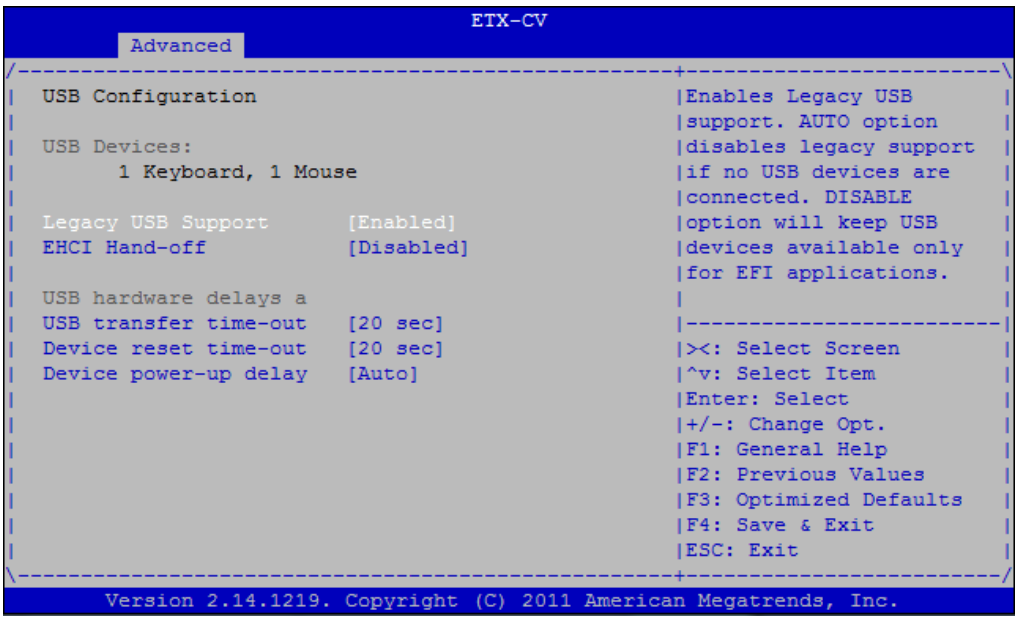


SATA Port 0/1 Hot Plug

Designates this port 0/1 as hot pluggable.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.3.7 USB Configuration



Legacy USB Support

Enables legacy USB support. Auto option disables legacy support if no USB devices are connected. Disable option will keep USB devices available only for EFI applications. Set this value to Enabled/Disabled/Auto.

EHCI Hand-off

This is a workaround for OS without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver. Set this value to Enabled/Disabled.

USB transfer time-out

The time-out value for control, bulk, and interrupt transfers.Set this value to 1 sec / 5 sec / 10 sec / 20 sec.

Device reset time-out

USB mass storage device start unit command time-out. Set this value to 10 sec / 20 sec / 30 sec / 40 sec.

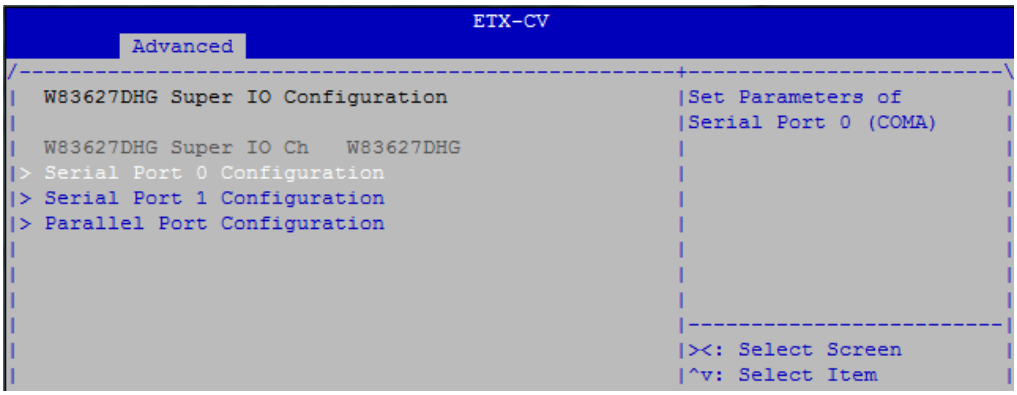
Device power-up delay

Maximum time the device will take before it properly reports itself to the host controller. 'Auto' uses default value: for a root port it is 100 ms, for a hub port the delay is taken from hub descriptor. Set this value to Auto/Manual.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

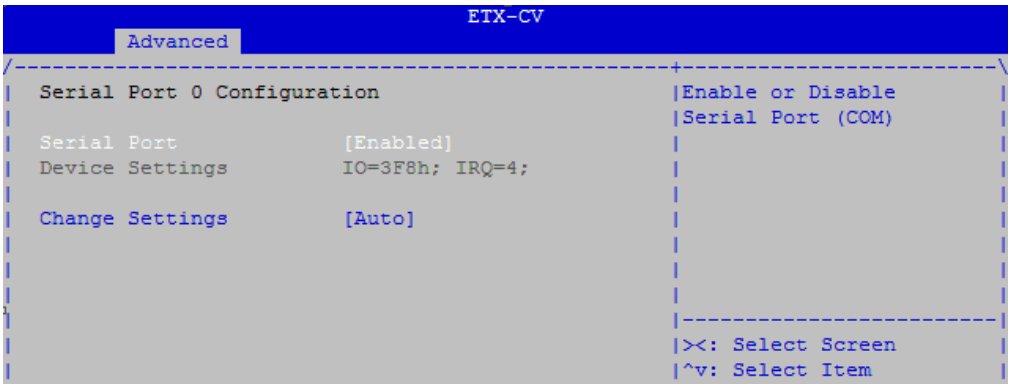
8.3.8 W83627DHG Super IO Configuration

You can use this screen to select options for the Super IO settings. Use the up and down < Arrow > keys to select an item. Use the < + > and < - > keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.



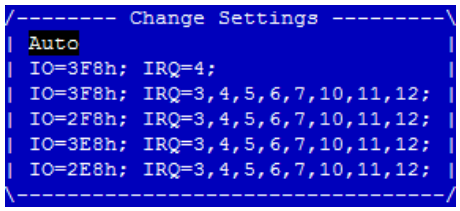
Serial Port 0,1 Configuration

Set Parameters of Serial Port 0, 1 (COM 1/2). Set this value to Enabled/Disabled.



Change Settings

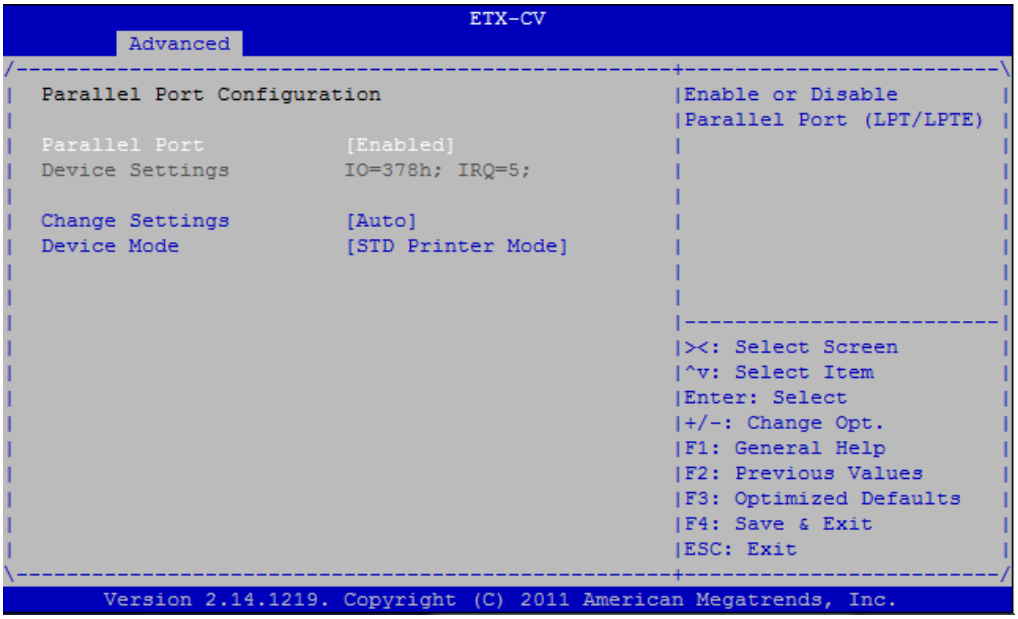
This option specifies the base I/O port address and interrupt request address of Serial Port 0, 1 (COM 1/2). Options shown below.



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

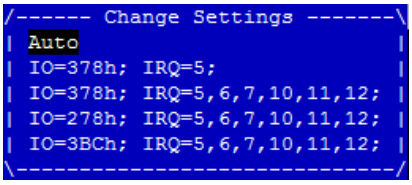
Parallel Port

Set Parameters of Parallel Port. Set this value to Enable/Disable.



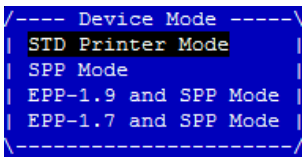
Change Settings

This option specifies the base I/O port address and interrupt request address of parallel port. Options shown below.



Device Mode

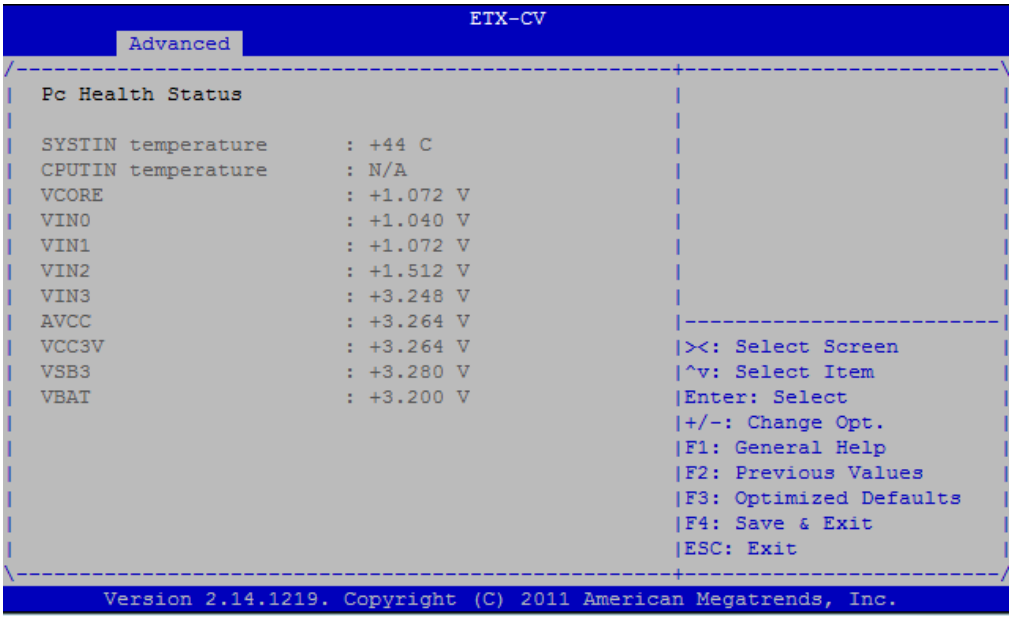
Change the printer port mode.



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

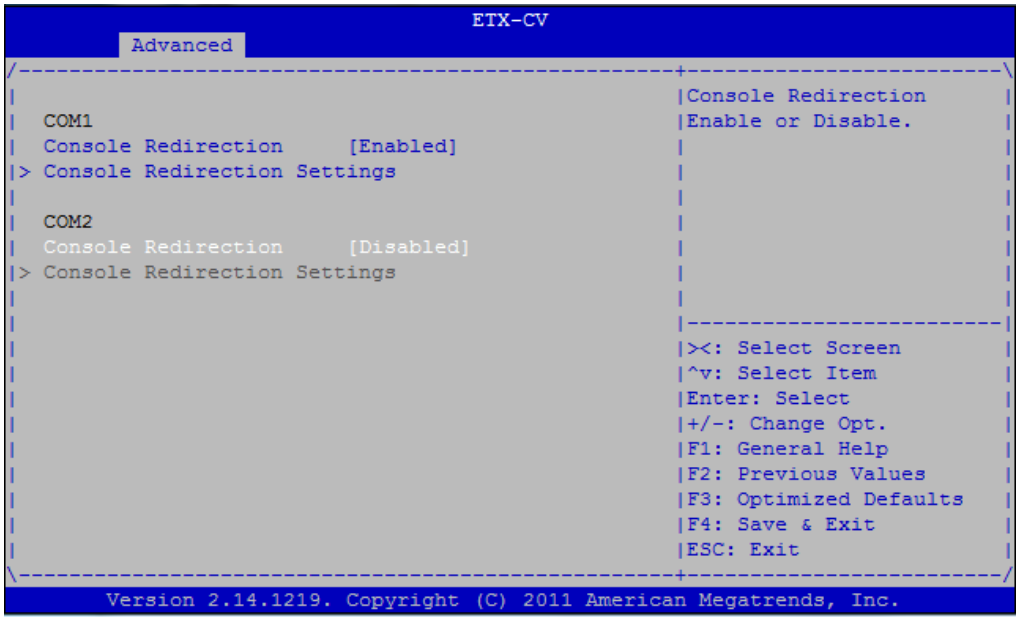
8.3.9 H/W Monitor

Use this screen to check system health status.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.3.10 Serial Port Console Redirection

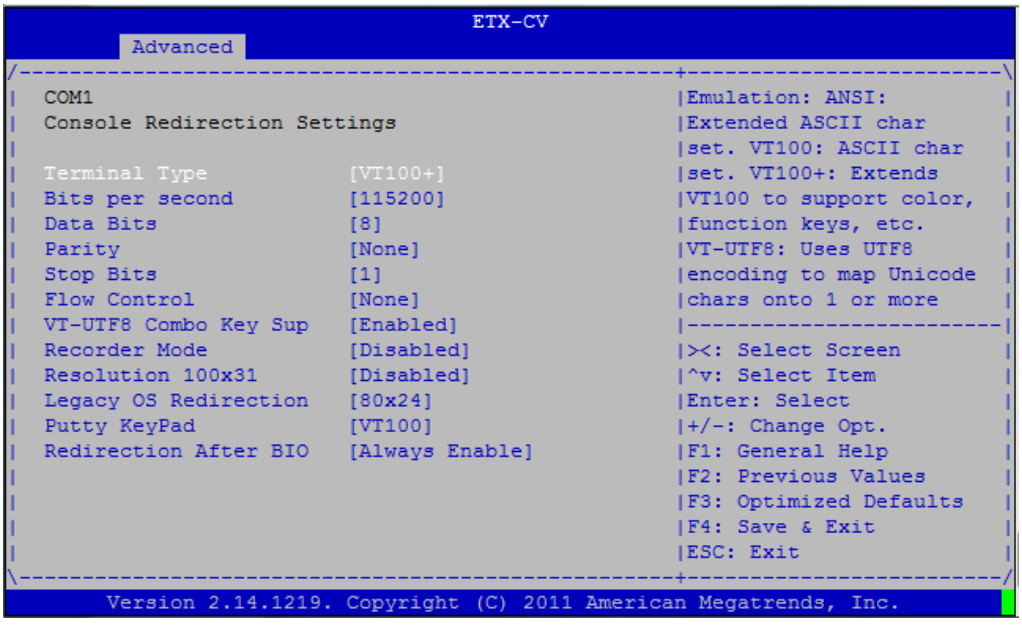


Console Redirection

Set this value to enable/disable console redirection.

Console Redirection Settings

The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Terminal Type

VT100+ is the preferred terminal type for out-of-band management. Configuration options: VT100, VT100+, VT-UTF8 , ANSI.

Bits per second

Select the bits per second you want the serial port to use for console redirection. The options are 115200, 57600, 38400, 19200, 9600.

Data Bits

Select the data bits you want the serial port to use for console redirection. Set this value to 7 / 8.

Parity

Set this option to select Parity for console redirection. The settings for this value are None, Even, Odd, Mark, Space.

Stop Bits

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit. Set this value to 1 and 2.

Flow Control

Set this option to select Flow Control for console redirection. The settings for this value are None, Hardware RTS/CTS.

VT-UTF8 Combo Key Support

Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.

Recorder Mode

Enabled this mode, only text will be sent. This is to capture terminal data.Set this value to Enabled/Disabled.

Resolution 100x31

Set this option to extended terminal resolution. Set this value to Enabled/Disabled.

Legacy OS Redirection

On Legacy OS, the number of rows and columns supported redirection. Set this value to 80x24 / 80x25.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Putty KeyPad

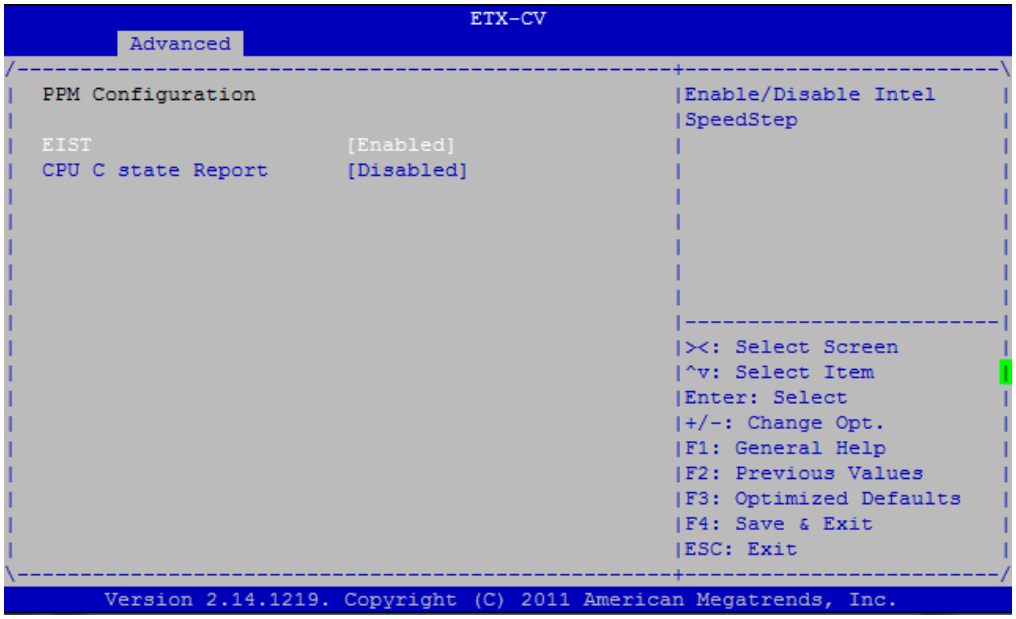
Select Function Key and KeyPad on Putty.

Redirection After BIOS POST

The Settings specify if BootLoader is selected than Legacy console redirection is disabled before booting to Legacy OS. Default value is Always Enable which means Legacy console Redirection is enabled for Legacy OS.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.3.11 PPM Configuration



EIST

It's allow the clock speed of the processor to be dynamically changed. Set this value to Enable/Disable.

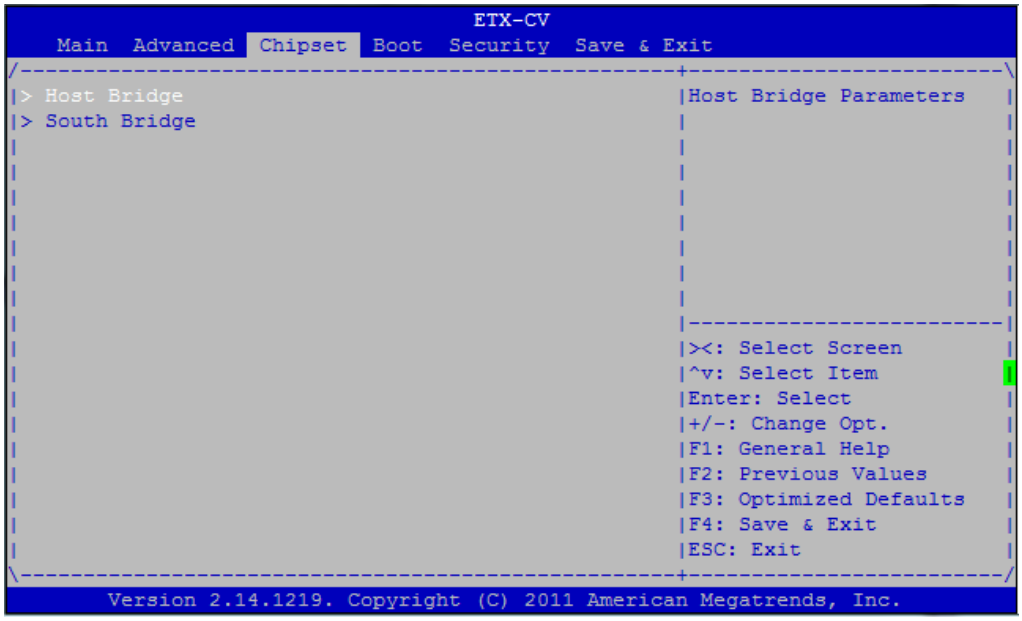
C-States

Enable or Disable C2 and above. Set this value to Enable/Disable.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

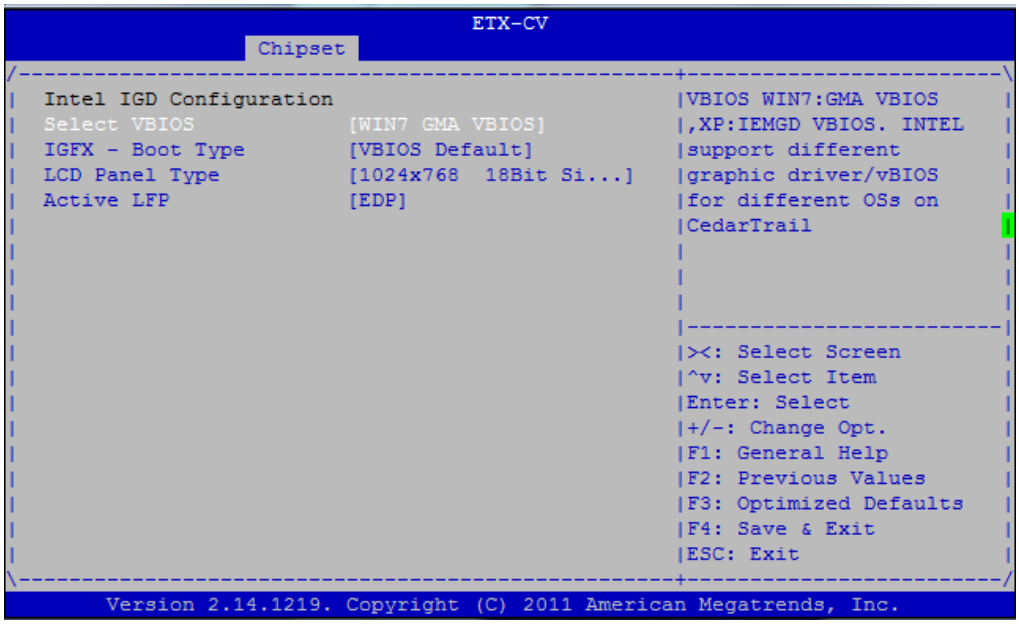
8.4 Chipset Configuration

Select the Chipset tab from the setup screen to enter the Chipset BIOS Setup screen. You can select any of Chipset BIOS Setup options by highlighting it using the < Arrow > keys. The Chipset BIOS Setup screen is shown below.



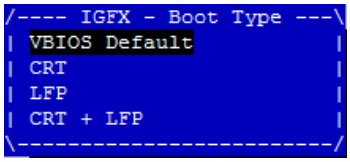
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.4.1 Host Bridge



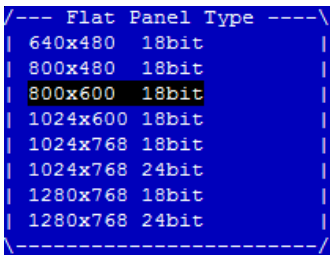
IGFX- Type – Boot Type

Select the boot display device. Set this value to **CRT, LFP, CRT+LFP.**



LCD Panel Type

When LVDS is selected from Boot Display Device, this option allows you to select resolution settings as below:

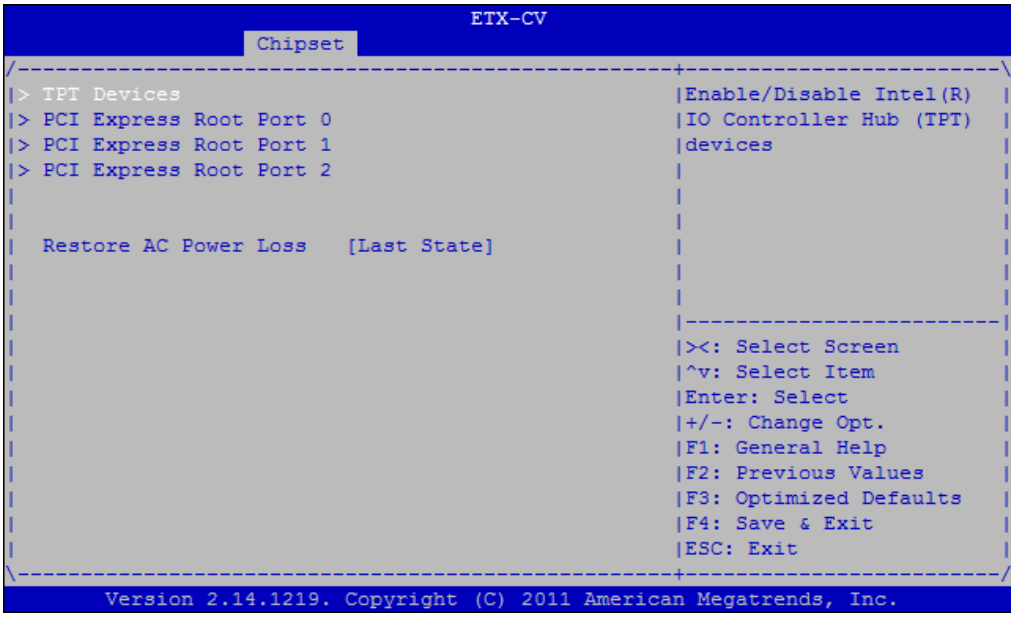


Active LFP

Select the boot display device.

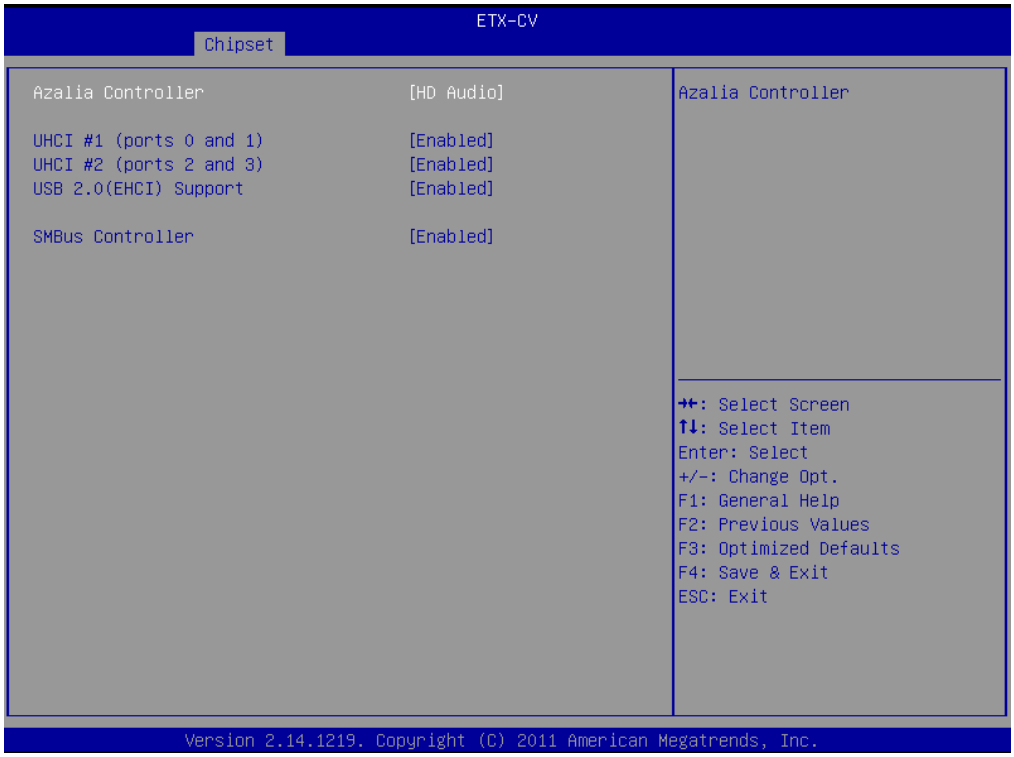
Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.4.2 South Bridge



TPT Device

Enable/Disable Intel IO Controller Hub Device.



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Azalia Controller

The audio controller. Set this value to Disable/HD Auto.

UHCI #1-2 Controller

The UHCI controller. Set this value to Enabled/Disabled/Auto.

USB2.0 Controller

The EHCI controller. Set this value to EnabledDisabled.

SMBus Controller

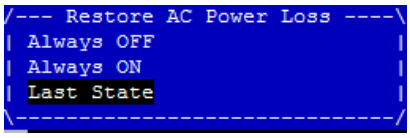
The SMBus controller. Set this value to Enabled/Disabled.

PCI Express Ports Configuration

The PCI Express Ports in the chipset. Configuration options: Enabled, Disabled.

Restore AC Power Loss

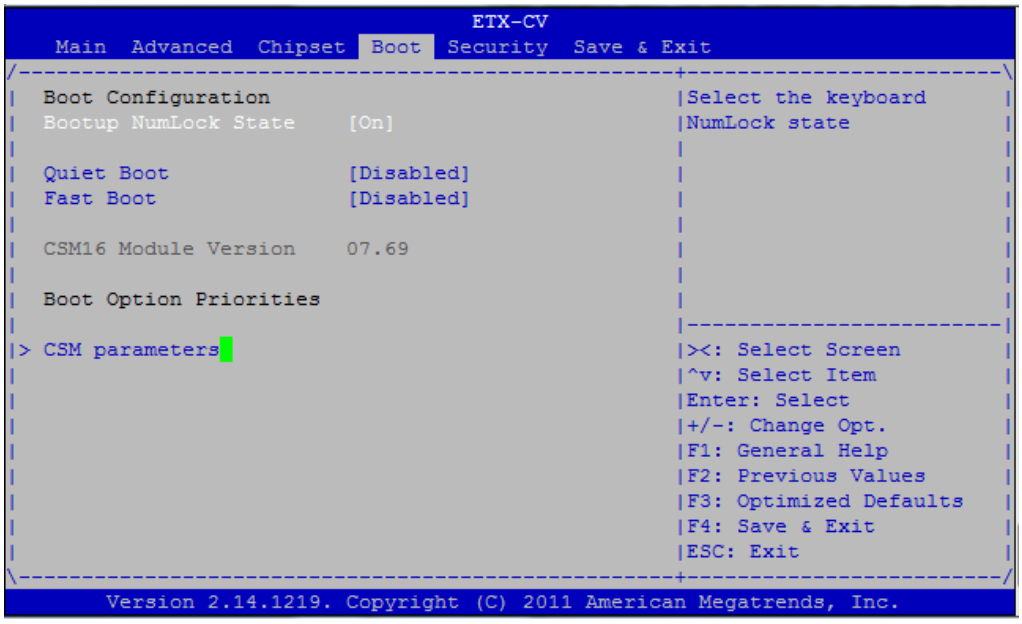
Select AC power state when power is re-applied after a power failure.



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.5 Boot Setup

Select the Boot tab from the setup screen to enter the Boot BIOS Setup screen. You can select any of the items in the left frame of the screen, such as Boot Device Priority, to go to the sub menu for that item. You can display an Boot BIOS Setup option by highlighting it using the < Arrow > keys. The Boot Settings screen is shown below:



Bootup Num-Lock

Set this value to allow the Number Lock setting to be modified during boot up.
Off - This option does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard will light up when the Number Lock is engaged.
On - Set this value to allow the Number Lock on the keyboard to be enabled automatically when the computer system is boot up. This allows the immediate use of 10-keys numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard will be lit.

Quiet Boot

Disabled - Set this value to allow the computer system to display the POST messages.

Enabled - Set this value to allow the computer system to display the OEM logo.

Fast Boot

Disabled - Set this value to allow the BIOS to perform all POST tests.

Enabled - Set this value to allow the BIOS to skip certain POST tests to boot faster.

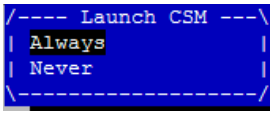
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.5.1 CSM Parameters



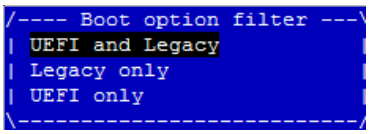
Launch CSM

This option controls if CSM will be launched.



Boot Option Filter

This option controls what devices system can boot to.



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Launch PXE OpROM policy

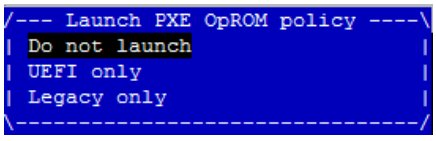
This Controls the execution of UEFI and Legacy PXE OpROM.

Launch storage OpROM

This Controls the execution of UEFI and Legacy PXE OpROM.

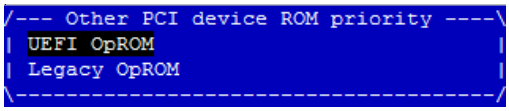
Launch video OpROM policy

This Controls the execution of UEFI and Legacy PXE OpROM.



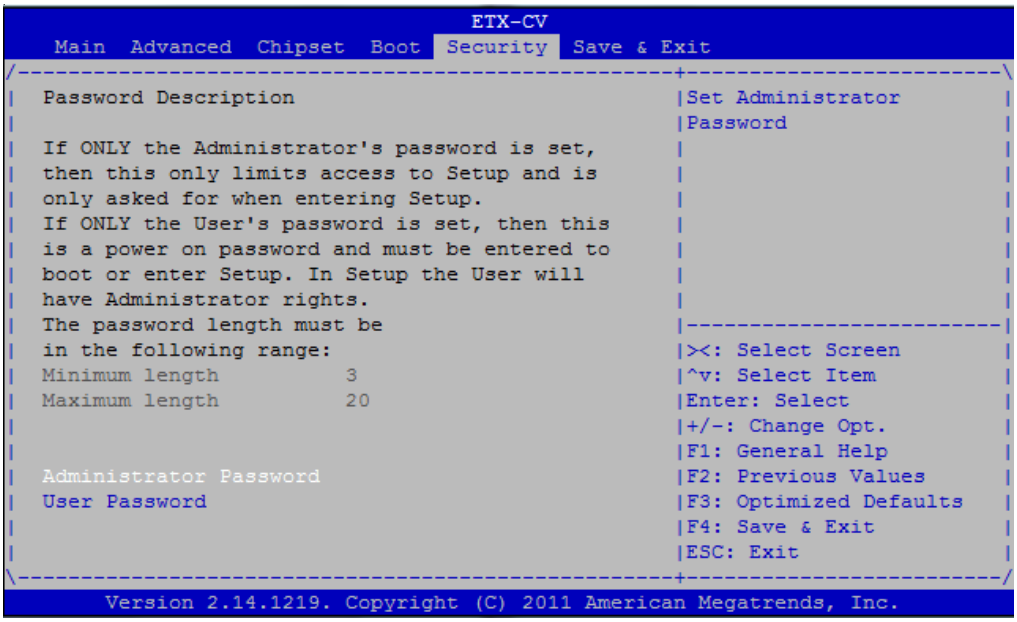
Other PCI device ROM

For PCI devices other than Network, Mass storage or Video defines which OpROM to launch.



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.6 Security Setup



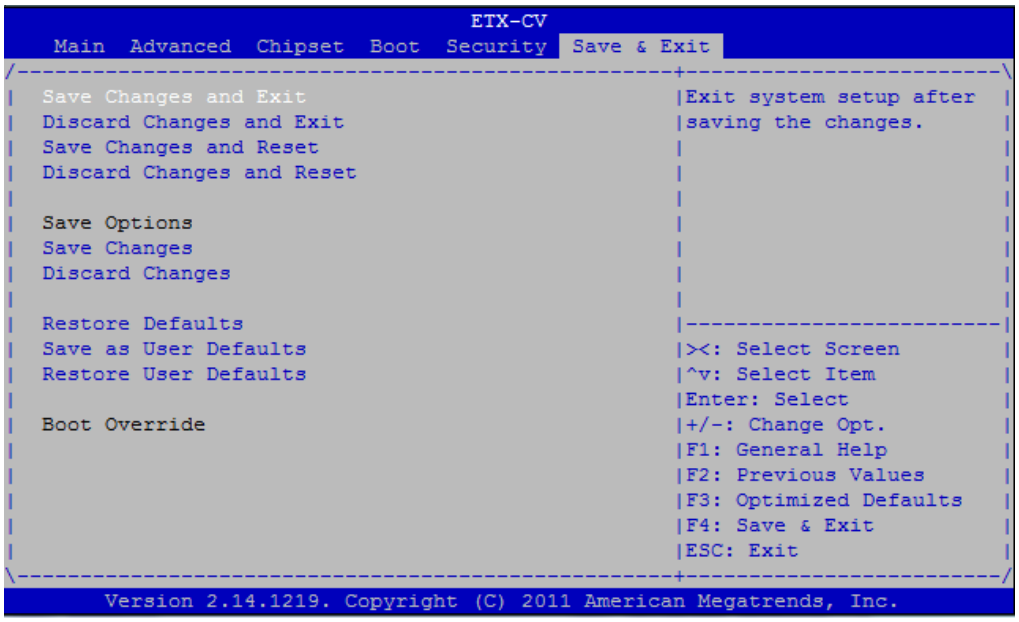
Administrator/User Password

If only the administrator's password is set, then this only limits access to setup and is only asked for when entering setup.

If only the user's password is set, then this is a power on password and must be entered to boot or enter setup. In setup the user will have administrator rights.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

8.7 Save & Exit



Save Changes and Exit

When you have completed the system configuration changes, select this option to save changes and continue booting the system. New configuration parameters will take effect after the next system restart.

Discard Changes and Exit

Select this option to quit Setup without saving changes to the system configuration and continue booting.

Save Changes and Reset

Reset the system after saving the changes.

Discard Changes and Reset

Reset system setup without saving any changes.

Save Options

Save changes made so far to any of the setup options.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Save Changes

When you have completed the system configuration changes, select this option to save your system configuration and continue. For some of the options it required to reset the system to take effect. Select YES to Save Changes and continue.

Discard Changes

Discard any unsaved changes

Restore Defaults

Restore standard default values for all the setup options.

Save as User Defaults

Save the changes made so far as User Defaults.

Restore User Defaults

Restore the User Defaults to all the setup options.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

9 BIOS Checkpoints, Beep Codes

This section of this document lists checkpoints and beep codes generated by AMIBIOS. The checkpoints defined in this document are inherent to the AMIBIOS generic core, and do not include any chipset or board specific checkpoint definitions.

Checkpoints and Beep Codes Definition

A checkpoint is either a byte or word value output to I/O port 80h. The BIOS outputs checkpoints throughout bootblock and Power-On Self Test (POST) to indicate the task the system is currently executing. Checkpoints are very useful for debugging problems that occur during the preboot process.

Beep codes are used by the BIOS to indicate a serious or fatal error. They are used when an error occurs before the system video has been initialized, and generated by the system board speaker.

Viewing BIOS Checkpoints

Viewing all checkpoints generated by the BIOS requires a checkpoint card, also referred to as a “POST Card” or “POST Diagnostic Card”. These are PCI add-in cards that show the value of I/O port 80h on a LED display.

Some computers display checkpoints in the bottom right corner of the screen during POST. This display method is limited, since it only displays checkpoints that occur after the video card has been activated.

Keep in mind that not all computers using AMIBIOS enable this feature. In most cases, a checkpoint card is the best tool for viewing AMIBIOS checkpoints.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

9.1 Status Code Ranges

Status Code Range	Description
0x01 – 0x0F	SEC Status Codes & Errors
0x10 – 0x2F	PEI execution up to and including memory detection
0x30 – 0x4F	PEI execution after memory detection
0x50 – 0x5F	PEI errors
0x60 – 0xCF	DXE execution up to BDS
0xD0 – 0xDF	DXE errors
0xE0 – 0xE8	S3 Resume (PEI)
0xE9 – 0xEF	S3 Resume errors (PEI)
0xF0 – 0xF8	Recovery (PEI)
0xF9 – 0xFF	Recovery errors (PEI)

9.2 Standard Status Codes

SEC Status Codes

Status Code	Description
0x0	Not used
Progress Codes	
0x1	Power on. Reset type detection (soft/hard).
0x2	AP initialization before microcode loading
0x3	North Bridge initialization before microcode loading
0x4	South Bridge initialization before microcode loading
0x5	OEM initialization before microcode loading
0x6	Microcode loading
0x7	AP initialization after microcode loading
0x8	North Bridge initialization after microcode loading
0x9	South Bridge initialization after microcode loading
0xA	OEM initialization after microcode loading
0xB	Cache initialization
SEC Error Codes	
0xC – 0xD	Reserved for future AMI SEC error codes
0xE	Microcode not found
0xF	Microcode not loaded

SEC Beep Codes

None.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

PEI Status Codes

Status Code	Description
0x0	Not used
Progress Codes	
0x10	PEI Core is started
0x11	Pre-memory CPU initialization is started
0x12	Pre-memory CPU initialization (CPU module specific)
0x13	Pre-memory CPU initialization (CPU module specific)
0x14	Pre-memory CPU initialization (CPU module specific)
0x15	Pre-memory North Bridge initialization is started
0x16	Pre-Memory North Bridge initialization (North Bridge module specific)
0x17	Pre-Memory North Bridge initialization (North Bridge module specific)
0x18	Pre-Memory North Bridge initialization (North Bridge module specific)
0x19	Pre-memory South Bridge initialization is started
0x1A	Pre-memory South Bridge initialization (South Bridge module specific)
0x1B	Pre-memory South Bridge initialization (South Bridge module specific)
0x1C	Pre-memory South Bridge initialization (South Bridge module specific)
0x1D – 0x2A	OEM pre-memory initialization codes
0x2B	Memory initialization. Serial Presence Detect (SPD) data reading
0x2C	Memory initialization. Memory presence detection
0x2D	Memory initialization. Programming memory timing information
0x2E	Memory initialization. Configuring memory
0x2F	Memory initialization (other).
0x30	Reserved for ASL (see ASL Status Codes section below)
0x31	Memory Installed
0x32	CPU post-memory initialization is started
0x33	CPU post-memory initialization. Cache initialization
0x34	CPU post-memory initialization. Application Processor(s) (AP) initialization
0x35	CPU post-memory initialization. Boot Strap Processor (BSP) selection
0x36	CPU post-memory initialization. System Management Mode (SMM) initialization
0x37	Post-Memory North Bridge initialization is started
0x38	Post-Memory North Bridge initialization (North Bridge module specific)
0x39	Post-Memory North Bridge initialization (North Bridge module specific)
0x3A	Post-Memory North Bridge initialization (North Bridge module specific)
0x3B	Post-Memory South Bridge initialization is started
0x3C	Post-Memory South Bridge initialization (South Bridge module specific)
0x3D	Post-Memory South Bridge initialization (South Bridge module specific)
0x3E	Post-Memory South Bridge initialization (South Bridge module specific)
0x3F-0x4E	OEM post memory initialization codes
0x4F	DXE IPL is started

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

PEI Status Codes (cont'd)

PEI Error Codes	
0x50	Memory initialization error. Invalid memory type or incompatible memory speed
0x51	Memory initialization error. SPD reading has failed
0x52	Memory initialization error. Invalid memory size or memory modules do not match.
0x53	Memory initialization error. No usable memory detected
0x54	Unspecified memory initialization error.
0x55	Memory not installed
0x56	Invalid CPU type or Speed
0x57	CPU mismatch
0x58	CPU self test failed or possible CPU cache error
0x59	CPU micro-code is not found or micro-code update is failed
0x5A	Internal CPU error
0x5B	reset PPI is not available
0x5C-0x5F	Reserved for future AMI error codes
S3 Resume Progress Codes	
0xE0	S3 Resume is stared (S3 Resume PPI is called by the DXE IPL)
0xE1	S3 Boot Script execution
0xE2	Video repost
0xE3	OS S3 wake vector call
0xE4-0xE7	Reserved for future AMI progress codes
0xE0	S3 Resume is stared (S3 Resume PPI is called by the DXE IPL)
S3 Resume Error Codes	
0xE8	S3 Resume Failed in PEI
0xE9	S3 Resume PPI not Found
0xEA	S3 Resume Boot Script Error
0xEB	S3 OS Wake Error
0xEC-0xEF	Reserved for future AMI error codes
Recovery Progress Codes	
0xF0	Recovery condition triggered by firmware (Auto recovery)
0xF1	Recovery condition triggered by user (Forced recovery)
0xF2	Recovery process started
0xF3	Recovery firmware image is found
0xF4	Recovery firmware image is loaded
0xF5-0xF7	Reserved for future AMI progress codes
Recovery Error Codes	
0xF8	Recovery PPI is not available
0xF9	Recovery capsule is not found
0xFA	Invalid recovery capsule
0xFB – 0xFF	Reserved for future AMI error codes

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

PEI Beep Codes

# of Beeps	Description
1	Memory not Installed
1	Memory was installed twice (InstallPeiMemory routine in PEI Core called twice)
2	Recovery started
3	DXEIPL was not found
3	DXE Core Firmware Volume was not found
7	Reset PPI is not available
4	Recovery failed
4	S3 Resume failed

DXE Status Codes

Status Code	Description
0x60	DXE Core is started
0x61	NVRAM initialization
0x62	Installation of the South Bridge Runtime Services
0x63	CPU DXE initialization is started
0x64	CPU DXE initialization (CPU module specific)
0x65	CPU DXE initialization (CPU module specific)
0x66	CPU DXE initialization (CPU module specific)
0x67	CPU DXE initialization (CPU module specific)
0x68	PCI host bridge initialization
0x69	North Bridge DXE initialization is started
0x6A	North Bridge DXE SMM initialization is started
0x6B	North Bridge DXE initialization (North Bridge module specific)
0x6C	North Bridge DXE initialization (North Bridge module specific)
0x6D	North Bridge DXE initialization (North Bridge module specific)
0x6E	North Bridge DXE initialization (North Bridge module specific)
0x6F	North Bridge DXE initialization (North Bridge module specific)
0x70	South Bridge DXE initialization is started
0x71	South Bridge DXE SMM initialization is started
0x72	South Bridge devices initialization
0x73	South Bridge DXE Initialization (South Bridge module specific)
0x74	South Bridge DXE Initialization (South Bridge module specific)
0x75	South Bridge DXE Initialization (South Bridge module specific)
0x76	South Bridge DXE Initialization (South Bridge module specific)
0x77	South Bridge DXE Initialization (South Bridge module specific)
0x78	ACPI module initialization
0x79	CSM initialization
0x7A – 0x7F	Reserved for future AMI DXE codes
0x80 – 0x8F	OEM DXE initialization codes
0x90	Boot Device Selection (BDS) phase is started
0x91	Driver connecting is started

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

DXE Status Codes (cont'd)

Status Code	Description
0x92	PCI Bus initialization is started
0x93	PCI Bus Hot Plug Controller Initialization
0x94	PCI Bus Enumeration
0x95	PCI Bus Request Resources
0x96	PCI Bus Assign Resources
0x97	Console Output devices connect
0x98	Console input devices connect
0x99	Super IO Initialization
0x9A	USB initialization is started
0x9B	USB Reset
0x9C	USB Detect
0x9D	USB Enable
0x9E – 0x9F	Reserved for future AMI codes
0xA0	IDE initialization is started
0xA1	IDE Reset
0xA2	IDE Detect
0xA3	IDE Enable
0xA4	SCSI initialization is started
0xA5	SCSI Reset
0xA6	SCSI Detect
0xA7	SCSI Enable
0xA8	Setup Verifying Password
0xA9	Start of Setup
0xAA	Reserved for ASL (see ASL Status Codes section below)
0xAB	Setup Input Wait
0xAC	Reserved for ASL (see ASL Status Codes section below)
0xAD	Ready To Boot event
0xAE	Legacy Boot event
0xAF	Exit Boot Services event
0xB0	Runtime Set Virtual Address MAP Begin
0xB1	Runtime Set Virtual Address MAP End
0xB2	Legacy Option ROM Initialization
0xB3	System Reset
0xB4	USB hot plug
0xB5	PCI bus hot plug
0xB6	Clean-up of NVRAM
0xB7	Configuration Reset (reset of NVRAM settings)
0xB8 – 0xBF	Reserved for future AMI codes
0xC0 – 0xCF	OEM BDS initialization codes

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

DXE Status Codes (cont'd)

DXE Error Codes	
0xD0	CPU initialization error
0xD1	North Bridge initialization error
0xD2	South Bridge initialization error
0xD3	Some of the Architectural Protocols are not available
0xD4	PCI resource allocation error. Out of Resources
0xD5	No Space for Legacy Option ROM
0xD6	No Console Output Devices are found
0xD7	No Console Input Devices are found
0xD8	Invalid password
0xD9	Error loading Boot Option (LoadImage returned error)
0xDA	Boot Option is failed (StartImage returned error)
0xDB	Flash update is failed
0xDC	Reset protocol is not available

DXE Beep Codes

# of Beeps	Description
4	Some of the Architectural Protocols are not available
5	No Console Output Devices are found
5	No Console Input Devices are found
1	Invalid password
6	Flash update is failed
7	Reset protocol is not available
8	Platform PCI resource requirements cannot be met

ACPI/ASL Status Codes

Status Code	Description
0x01	System is entering S1 sleep state
0x02	System is entering S2 sleep state
0x03	System is entering S3 sleep state
0x04	System is entering S4 sleep state
0x05	System is entering S5 sleep state
0x10	System is waking up from the S1 sleep state
0x20	System is waking up from the S2 sleep state
0x30	System is waking up from the S3 sleep state
0x40	System is waking up from the S4 sleep state
0xAC	System has transitioned into ACPI mode. Interrupt controller is in PIC mode.
0xAA	System has transitioned into ACPI mode. Interrupt controller is in APIC mode.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

9.3 OEM-Reserved Status Code Ranges

Status Code	Description
0x5	OEM SEC initialization before microcode loading
0xA	OEM SEC initialization after microcode loading
0x1D – 0x2A	OEM pre-memory initialization codes
0x3F – 0x4E	OEM PEI post memory initialization codes
0x80 – 0x8F	OEM DXE initialization codes
0xC0 – 0xCF	OEM BDS initialization codes

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Appendix A: **Connectors and Mounting**

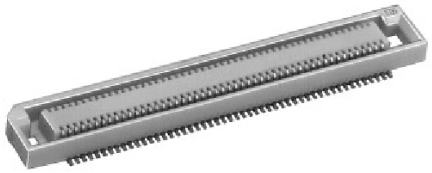
A.1 **Carrier Board ETX Connecter Heights** (Hirose FX8/FX8C Receptacles)

For different stacking heights, the receptacles for ETX carrier boards are available in two heights, 3 mm and 9.5 mm. When 3 mm receptacles are chosen, the carrier board should be free of components.

FX8-100S-SV

100-pin board-to-board connector for
3 mm board stacking

This connector can be used with :
- 3 mm through-hole standoffs (SMT type)
- 3 mm threaded standoffs (DIP type)



FX8C-100S-SV5

100-pin board-to-board connector for
9.5 mm board stacking

This connector can be used with :
- 9.5 mm through-hole standoffs (SMT type)
- 9.5 mm threaded standoffs (DIP type)



FX8C/FX8 Common Spec

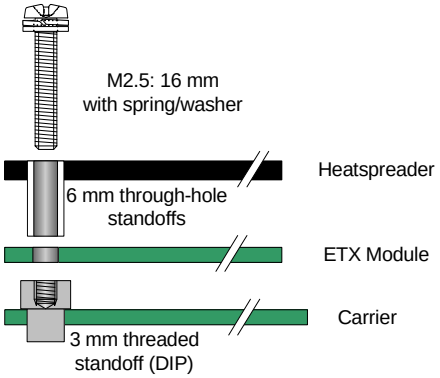
- Current capacity 0.4 A per pin
- Rated voltage 100 V AC
- Insulation resistance 100 M or greater @ 250 V DC
- Withstand voltage 300 V AC r.m.s.
- Contact resistance 45 m or less @ 100 mA DC
- Insulation PPS resin (Light brown, UL94V-0)
- Contacts phosphor bronze (gold plated contacts and leads)

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

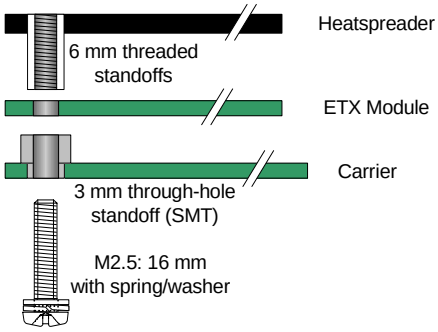
A.3 Mounting Procedures

There are several standard ways to mount an ETX board with heatspreader on a carrier board. ETX boards may be mounted with 9.5 mm ETX connectors on the carrier board or standard 3 mm connectors. There are also two different types of heatspreaders to choose from: heatspreaders with threaded standoffs which require inserting screws from under the carrier, or top mounting heatspreaders using through-hole heatspreader standoffs and threaded carrier board standoffs.

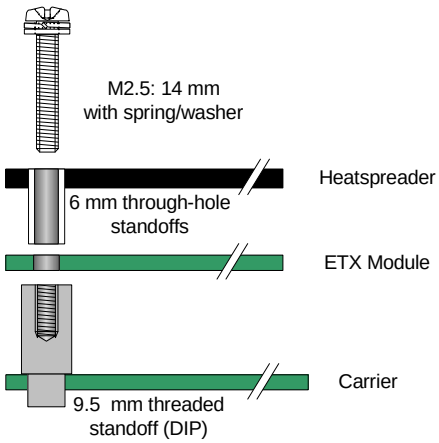
Top Mounting
3 mm Hirose FX8-100S-SV
Carrier Board Connectors



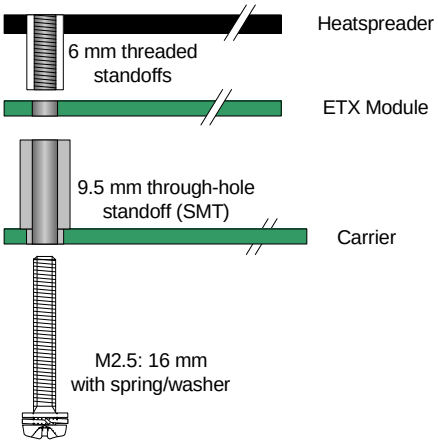
Bottom Mounting
3 mm Hirose FX8-100S-SV
Carrier Board Connectors



Top Mounting
9.5 mm Hirose FX8C-100S-SV5
Carrier Board Connectors



Bottom Mounting
9.5 mm Hirose FX8C-100S-SV5
Carrier Board Connectors



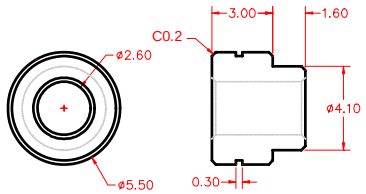
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

A.4 Standoff Types - Carrier Board

For different mounting procedures there are different standoffs available for the carrier board. Note that threaded standoffs are both DIP and SMT type and the through-hole types are all SMT type. Other types not listed can be made available upon request.

33-72000-0030

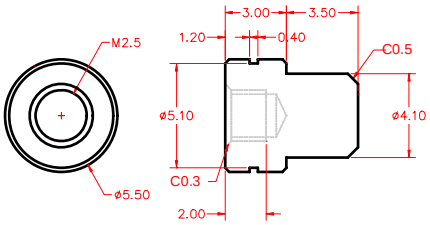
3 mm through-hole standoff (SMT type)



for **HTS-EAT-B** with 3 mm Hirose carrier board connectors

33-72011-0030

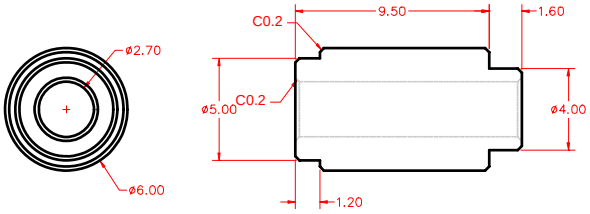
3 mm threaded standoff (DIP type)



for **HTS-EAT-BT** with 3 mm Hirose carrier board connectors

33-72007-9P50

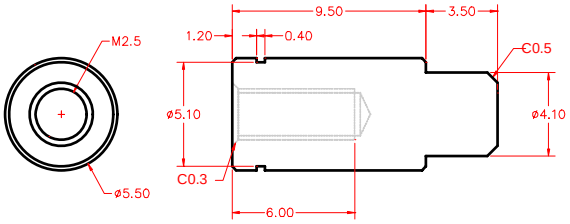
9.5 mm through-hole standoff (SMT type)



for **HTS-EAT-B** with 9.5 mm Hirose carrier board connectors

33-72011-9P50

9.5 mm threaded standoff (DIP type)



for **HTS-EAT-BT** with 9.5 mm Hirose carrier board connectors

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Important Safety Instructions

For user safety, please read and follow all instructions, **warnings**, **cautions**, and **notes** marked in this manual and on the associated equipment before handling/operating the equipment.

- Read these safety instructions carefully.
- Keep this user's manual for future reference.
- Read the specifications section of this manual for detailed information on the operating environment of this equipment.
- When installing/mounting or uninstalling/removing equipment:

  - Turn off power and unplug any power cords/cables.
- To avoid electrical shock and/or damage to equipment:
  - Keep equipment away from water or liquid sources;
  - Keep equipment away from high heat or high humidity;
  - Keep equipment properly ventilated (do not block or cover ventilation openings);
  - Make sure to use recommended voltage and power source settings;
  - Always install and operate equipment near an easily accessible electrical socket-outlet;
  - Secure the power cord (do not place any object on/over the power cord);
  - Only install/attach and operate equipment on stable surfaces and/or recommended mountings; and,
  - If the equipment will not be used for long periods of time, turn off and unplug the equipment from its power source.
- Never attempt to fix the equipment. Equipment should only be serviced by qualified personnel.
- A Lithium-type battery may be provided for uninterrupted, backup or emergency power.



Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

- Equipment must be serviced by authorized technicians when:
  - The power cord or plug is damaged;
  - Liquid has penetrated the equipment;
  - It has been exposed to high humidity/moisture;
  - It is not functioning or does not function according to the user's manual;
  - It has been dropped and/or damaged; and/or,
  - It has an obvious sign of breakage.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Getting Service

Contact us should you require any service or assistance.

ADLINK Technology, Inc.
Address: 9F, No.166 Jian Yi Road, Zhonghe District
New Taipei City 235, Taiwan
新北市中和區建一路 166 號 9 樓
Tel: +886-2-8226-5877
Fax: +886-2-8226-5717
Email: service@adlinktech.com

Ampro ADLINK Technology, Inc.
Address: 5215 Hellyer Avenue, #110
San Jose, CA 95138, USA
Tel: +1-408-360-0200
Toll Free: +1-800-966-5200 (USA only)
Fax: +1-408-360-0222
Email: info@adlinktech.com

ADLINK Technology (China) Co., Ltd.
Address: 上海市浦东新区张江高科技园区芳春路 300 号 (201203)
300 Fang Chun Rd., Zhangjiang Hi-Tech Park
Pudong New Area, Shanghai, 201203 China
Tel: +86-21-5132-8988
Fax: +86-21-5132-3588
Email: market@adlinktech.com

ADLINK Technology Beijing
Address: 北京市海淀区上地东路 1 号盈创动力大厦 E 座 801 室(100085)
Rm. 801, Power Creative E, No. 1 Shang Di East Rd.
Beijing, 100085 China
Tel: +86-10-5885-8666
Fax: +86-10-5885-8626
Email: market@adlinktech.com

ADLINK Technology Shenzhen
Address: 深圳市南山区科技园南区高新南七道 数字技术园
A1 栋 2 楼 C 区 (518057)
2F, C Block, Bldg. A1, Cyber-Tech Zone, Gao Xin Ave. Sec. 7
High-Tech Industrial Park S., Shenzhen, 518054 China
Tel: +86-755-2643-4858
Fax: +86-755-2664-6353
Email: market@adlinktech.com

LiPPERT ADLINK Technology GmbH
Address: Hans-Thoma-Strasse 11, D-68163
Mannheim, Germany
Tel: +49-621-43214-0
Fax: +49-621 43214-30
Email: emea@adlinktech.com

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

ADLINK Technology, Inc. (French Liaison Office)
Address: 6 allée de Londres, Immeuble Ceylan
91940 Les Ulis, France
Tel: +33 (0) 1 60 12 35 66
Fax: +33 (0) 1 60 12 35 66
Email: france@adlinktech.com

ADLINK Technology Japan Corporation
Address: 〒101-0045 東京都千代田区神田鍛冶町 3-7-4
神田 374 ビル 4F
KANDA374 Bldg. 4F, 3-7-4 Kanda Kajicho,
Chiyoda-ku, Tokyo 101-0045, Japan
Tel: +81-3-4455-3722
Fax: +81-3-5209-6013
Email: japan@adlinktech.com

ADLINK Technology, Inc. (Korean Liaison Office)
Address: 137-881 서울시 서초구 서초대로 326, 802 (서초동, 모인터빌딩)
802, Mointer B/D, 326 Seocho-daero, Seocho-Gu,
Seoul 137-881, Korea
Tel: +82-2-2057-0565
Fax: +82-2-2057-0563
Email: korea@adlinktech.com

ADLINK Technology Singapore Pte. Ltd.
Address: 84 Genting Lane #07-02A, Cityneon Design Centre
Singapore 349584
Tel: +65-6844-2261
Fax: +65-6844-2263
Email: singapore@adlinktech.com

ADLINK Technology Singapore Pte. Ltd. (Indian Liaison Office)
Address: #50-56, First Floor, Spearhead Towers
Margosa Main Road (between 16th/17th Cross)
Malleswaram, Bangalore - 560 055, India
Tel: +91-80-65605817, +91-80-42246107
Fax: +91-80-23464606
Email: india@adlinktech.com

ADLINK Technology, Inc. (Israeli Liaison Office)
Address: 27 Maskit St., Corex Building
PO Box 12777
Herzliya 4673300, Israel
Tel: +972-54-632-5251
Fax: +972-77-208-0230
Email: israel@adlinktech.com

ADLINK Technology, Inc. (UK Liaison Office)
Tel: +44 774 010 59 65
Email: UK@adlinktech.com

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000



Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000