EUROTECH

<u>**Product Notice**</u>

<u>**PN Number 98**</u>

ISIS hardware update from v1i2 to v1i3
ISIS BIOS updates v03.00.00.14 to v06.0x.00.10
ISIS uCTRL updates from v1.44 to v08.00.00.05

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PCB Issue:	3	**Schematic Issue:**	3

The ISIS board has been updated from v1i2 to v1i3. There have also been BIOS and uCTRL firmware updates that apply to both v1i2 and v1i3 boards. This document outlines the key differences that users should be aware of when migrating from the ISIS v1i2 to v1i3, when updating the BIOS to v06.0x.00.10, and updating the uCTRL firmware to v08.00.00.05.

ISIS v1i3 – Hardware changes

COM port 2

DTR# signal support option for RS485 is included on the ISIS v1i3. This feature enables the selection of data transmit control signal for Auto-485 feature (RTS# or DTR#). Selection is via a BIOS setup menu option.

Remote SIM card

An optional connector has been added for remote SIM card. This is a build option.

VGA connector J4

DDC SCL and SDA pins have been swapped, so the pin-out is compatible with the other Eurotech PC/104+ CPU boards. A new ISIS breakout board (p/n 6560-00805-001-102) is included in the ISIS v1i3 Dev-kit, and supports this modification.

COM port 4

A new serial port (COM4) is included to allow access to the additional GPS receiver port (SiRF binary protocol). COM4 is disabled by default; it can be enabled via a BIOS setup menu option.

PCIe Mini Card

1. USB interface on the PCIe Mini Card (socket J8) on the ISIS v1i2 board supports USB2.0 high speed devices only. On the ISIS v1i3 board, USB on the PCIe Mini Card socket is connected via a USB hub. This makes it fully compatible with USB2.0 specification by enabling support for full speed and high speed devices.
2. PCI Express Mini Card specification 1.2 specifies additional power pins: GND pins 37&43 and +3.3V pins 39&41. These pins are connected on the ISIS v1i3 board.
3. WDIS# (Wireless Disable) and +3.3Vaux pins are required for modem operation and are connected on the ISIS v1i3 board.

Jumper JP3

Supercap enable/disable jumper has been moved, and it is changed to a smaller 2mm pitch jumper instead of the original 2.54mm.

LVDS connector

LVDS connector (J6) has been replaced with a right angle connector and moved to the bottom side of the PCB. It is no longer necessary to remove the CPU module in order to access the LVDS connector. See the ISIS technical manual (IssF) for connector pinout and type.
A new LVDS cable is required (Eurotech p/n **2042-54022-000-000).**

GPS receiver standby

Support for the GPS receiver's standby state has been removed on the ISIS v1i3. This is due to the GPS receiver's standby current being too high for the on-board supercap.

Hardware modification (PC/104+ PCI clocks)

Reason: A drop in PCI clock signal quality has been observed on the PC/104+ slots in cases where more then two PC/104+ cards are used with the ISIS.
Details of modification: A hardware modification of the PCI clock distribution has been implemented on the V1I3 boards to improve the PCI clock signal quality for all the PC/104+ slots. Modbox A has been marked, and you may notice a few wire modifications on the bottom side of the v1i3 board (near the IC U4).

Hardware modification (ISA memory access)

Reason: The ISA memory range on the ISIS is located in the 0x80000000–0x800FFFFF region. Some PC/104 cards implement SMEMR#/SMEMW# signals to access low 1 megabyte of memory space, so memory access to these cards is not possible.
Details of modification: A hardware modification of the ISA bus MEMR#/SMEMR# and MEMW#/SMEMW# signals has been implemented on the V1I2 and V1I3 boards to enable memory access to all types of PC/104 cards. You will notice that the modbox B has been marked on the V1I3 boards (bottom side of the PCB).

BIOS update to v06.0x.00.07- Applies to all ISIS v1i2 and v1i3 boards

BIOS v06.0x.00.06

BIOS variants depending on memory configurations

1GB memory: BIOS v 06.01.00.06
512MB memory: BIOS v 06.05.00.06
2GB memory: BIOS v 06.07.00.06

New IDE features

New IDE features are included in the BIOS setup utility:
   a) When Auto mode is selected, the transfer mode selected by the BIOS is displayed next to each IDE device. This is the default option.
   b) In manual mode, user can select the transfer speed up to the maximum speed the IDE device is capable of (depending on the IDE cable type used).

COM ports 2 and 3

COM ports 2 and 3 have been swapped. COM2 is now a user port, COM3 is used for on-board GPS receiver.

RS485 DTR# support option

COM port 2 – RS485 DTR# support option is included. BIOS setup utility enables the selection of data transmit control signal for Auto-485 feature (RTS# or DTR#). Hardware support for this feature is available on the ISIS V1I3 only. ISIS V1I2 board supports the RTS# signal control only.

COM Port 4

A new COM4 port is included to allow the access to the additional GPS receiver port, and is disabled by default. COM4 can be enabled via a BIOS Setup utility. Hardware support for COM4 is available on the ISIS V1I3 only.

PXE boot option

BIOS setup option for PXE boot has been removed. Intel have advised that the PXE boot for the Ethernet controller 82551IT/ER is no longer supported.

PC/104 IRQ configuration

PC/104: IRQ configuration options are included for optional use of disabled serial port IRQ's, PS/2 mouse IRQ, etc. It is possible to reserve some IRQ's for use by the PC/104 ISA peripherals.

Reset BIOS settings to default

In BIOS 3.0.0.14, the mechanism for resetting the BIOS settings to defaults was removal of power and backup battery/supercap. For BIOS versions 06.0x.00.06 and higher, this mechanism has been changed, so that removing the power and backup battery/supercap does not affect the BIOS settings.
If you press the hotkey F3 during boot (as soon as your keyboard is operational), the BIOS settings will be reset to default, with VGA as a default POST display.

POST video default

sDVO-CRT (VGA) is now a default option for POST video.
Potential Issue: If you are using the LVDS display only, and you update your BIOS or reset the BIOS settings to default, you may need to connect the VGA display temporarily to be able to

change the POST video back to LVDS. This has been resolved in the BIOS v06.0x.00.10 (see the next section for details).

BIOS v06.0x.00.07

Microcode updates recommended by Intel to improve the memory access.

BIOS update to v06.0x.00.10 - Applies to all ISIS v1i2 and v1i3 boards

BIOS variants depending on memory configurations

1GB memory: BIOS v06.01.00.10
512MB memory: BIOS v06.05.00.10
2GB memory: BIOS v06.07.00.10

Reset BIOS settings to default - POST Display configuration

This is to avoid a potential "no POST display" issue. There are two hotkey options available to reset the BIOS settings to default. Press the hotkey F3 or F4 during boot (as soon as your keyboard is operational) depending on the display you are using:
1. F3 - loads the default BIOS configuration, VGA is the default POST display.
2. F4 - loads the default BIOS configuration, LVDS is the default POST display.

PCI Latency and Cache Line Size

The BIOS setup menu option is available to configure the Cache Line Size registers and Master Latency Timer registers for all PCI devices that implement these registers.
Options available in the BIOS setup menu:
1. Disable – PCI Latency Timers and Cache Line Size are set to 0.
2. Enable – Allows selection of a value for PCI Latency Timers in the range of 8-256 in steps of 8. Cache Line Size registers are set to 16.
3. Auto (Default) – Sets PCI Latency Timers based on PCI devices' MIN_GNT registers. Cache Line Size registers are set to 16.

uCTRL code updates – Applies to all ISIS v1i2 and v1i3 boards

uCTRL v08.00.00.04

This supports the system management functions required for the new Linux software infrastructure.

uCTRL v08.00.00.05

ISIS industrial boards hang during boot upon cold power-up unless the external battery or on-board supercap is connected. The issue is also present if the supercap is connected but discharged.
Intel have advised that there is an existing issue with the Intel Atom chipset's RTC, which requires 0.5s - 2s start-up time. The uCTRL firmware v08.00.00.05 fixes this issue as per Intel's recommendation – the reset signal is released >2s after power-up.

If you have any questions about this or about any of our products please contact Technical Support.