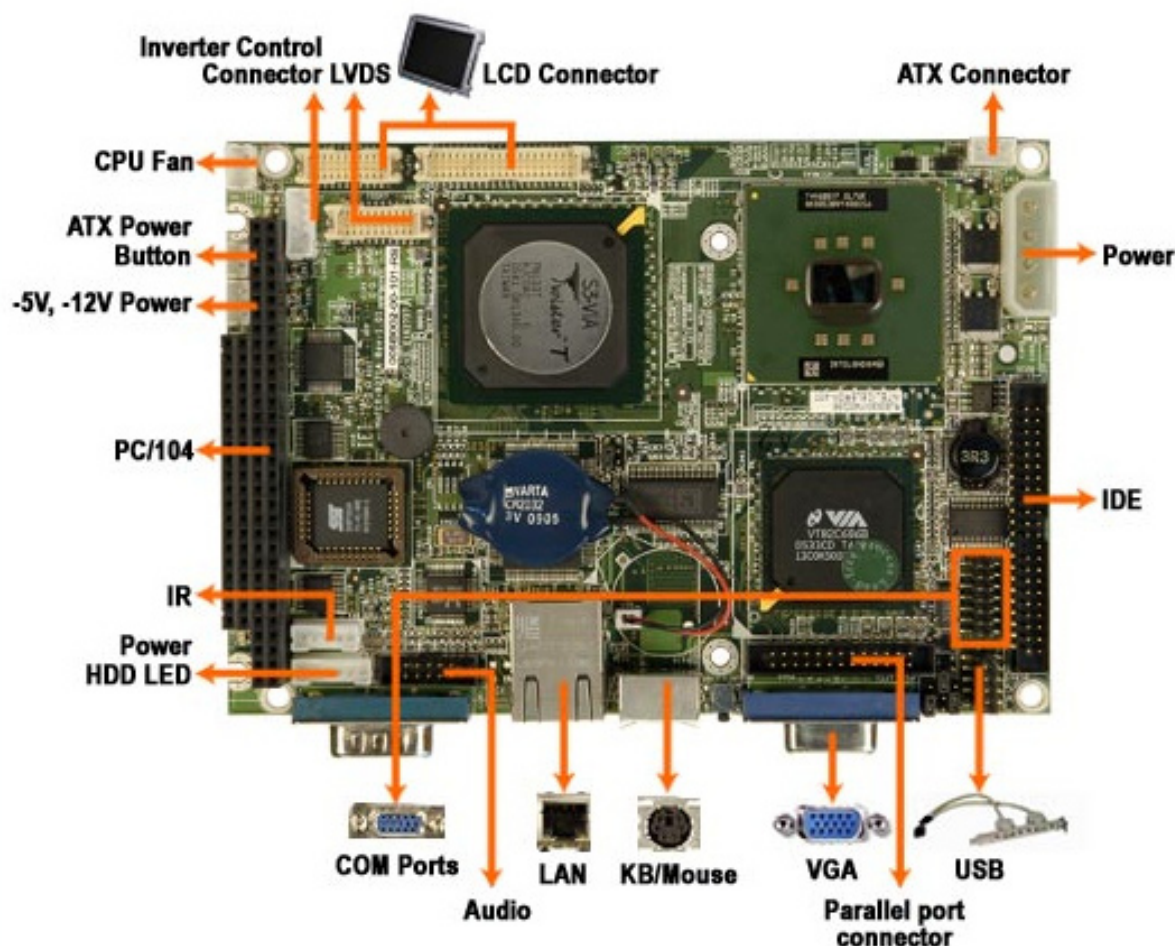


# WAFER-9371A *Cool, Quiet and LCD Support Has Never Been Easier!!*

8.5" ULV Intel® Celeron® SBC with Onboard CPU, Audio, VGA/LCD and LAN



## 1. Cool and Quiet

On board ULV Intel® Celeron® 400 / 650MHz processor with heatsink

## 2. Complete and Easy LCD Support

- 36 bit TFT, 18-bit or 24-bit LCD panel, with up to 1024 x 768 resolution supported
- 2 channel LVDS interface supported

## 3. Diskless Booting

IEI BIOS PXE feature supports Boot-on-LAN with ATX power supply

## 4. RoHS Compliance

Meet the RoHS ready product, ready to spec in new long term projects now



- Datasheet
- Manual
- Performance
- Function Block

- Dimension
- Test Report
- Video Guide
- Specification

- Ordering Information

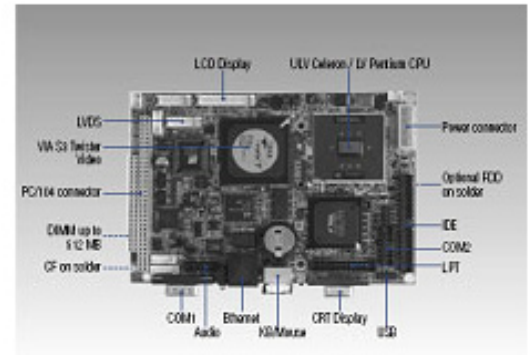
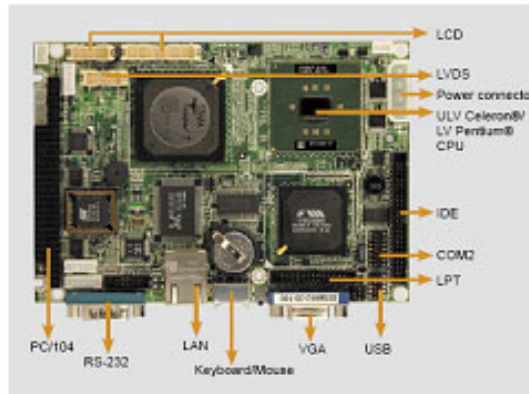


**▶ RoHS ready now!**

**28% Power Saving!**



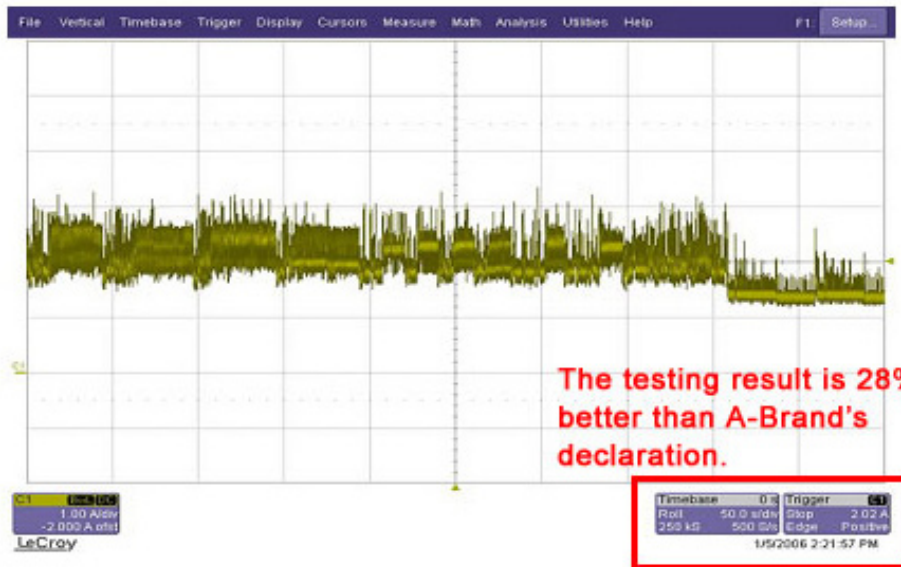
**Low Power**



	<b>IEI</b>	<b>A Brand</b>
<b>Product</b>	WAFER-9371A	PXX-9371
<b>Form Factor</b>	3.5" SBC	3.5" SBC
<b>CPU</b>	ULV Intel Celeron 400	ULV Intel Celeron 400
<b>NB</b>	VT8606T	VT8606T
<b>SB</b>	VT82C686B	VT82C686B
<b>Display</b>	CRT 36-bit TTL 2x18-bit LVDS	CRT 36-bit TTL 2x18-bit LVDS
<b>I/O Interface</b>	1x EIDE 1x FDD(optional) 1x K/B 1x M/S 1x RS-232/422/485 1x RS-232 1x LPT	1x EIDE 1x FDD(optional) 1x K/B 1x M/S 1x RS-232/422/485 1x RS-232 1x LPT
<b>RoHS</b>	<b>Available Now</b>	N/A
<b>Ethernet</b>	<b>10/100Mbps RTL8100C</b>	10/100Mbps RTL8100BL
<b>USB</b>	2x USB 1.1	2x USB 1.1
<b>Audio</b>	<b>ALC655 5.1CH</b>	ALC202A 2.1CH
<b>IrDA</b>	115kbps	115kbps
<b>WDT</b>	<b>1~255 sec</b>	1~62 sec
<b>Power Consumption</b>	<b>5V@2.01A ULV Celeron 400/256MB</b>	5V@2.79A ULV Celeron 400/256MB
<b>Dimension</b>	5.7"x 4"	5.7"x 4"

**IEI can promise you longer product life by components guarantee and RoHS compliance now!**

**Power Consumption Real-Time Running Test**



WAFER-9371A Power Consumption			
(+5V) 10minutes in 25°C			
Test Sample			Unit
Ampere	2.02		A

Test Configuration			
CPU Type	Celeron® 400MHz	RAM Module	Transcend PC133 256M

Install OS: Windows 2000			
3D Mark 2001			
VGA Type	S3-VIA Twister™ T	DirectX	9.0b
Resolution	800 X 600	Color Pixel	32
VGA Memory	8M	Score	365

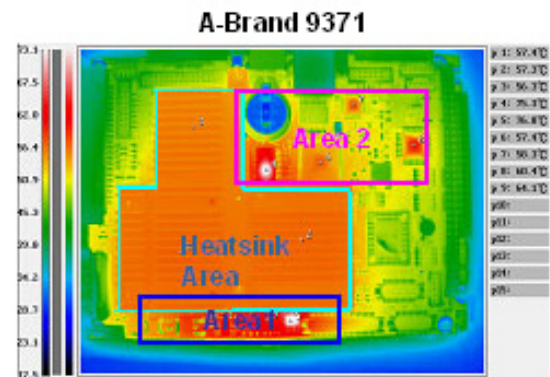
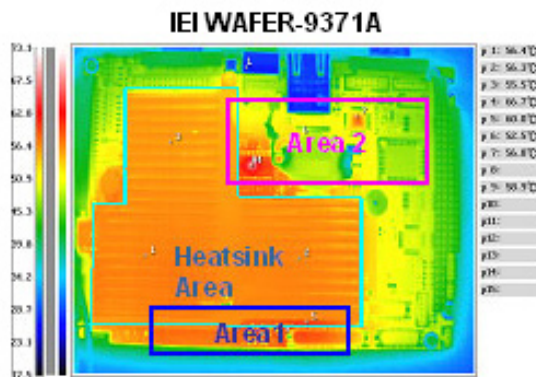
**Thermal Testing !**



**Infrared thermography** is a latest development equipment, which detects infrared energy emitted from object, converts it to temperature, and displays image of temperature distribution.

**Brand** NIPPON  
**Model Neo** Thermo TVS-700

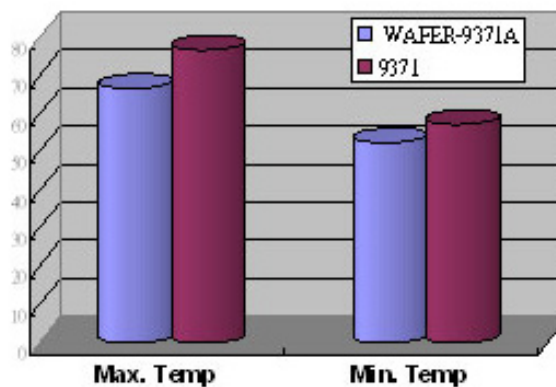
▶ **Testing Result !**



**Fact 1**

Thermal Test	Peak Value	
	Max. Temp	Min. Temp
WAFER-9371A	66.7°C	52.5°C
9371	76.8°C	57.3°C

WAFER-9371A temp range : 14.2°C  
9371 temp range : 19.5°C

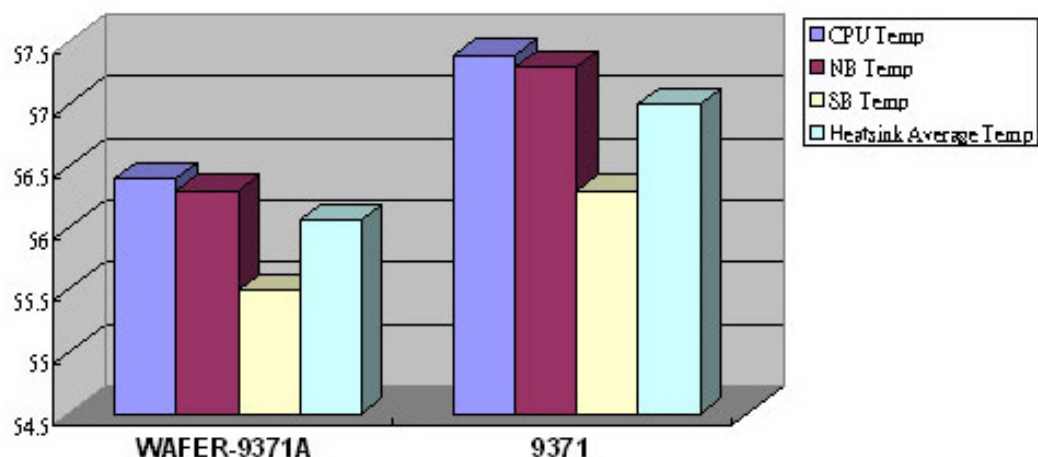


IEI WAFER-9371A operates with minimum difference in surface temperatures on separate sections of the board. A better temperature control guarantees a more reliable system operation in the long run.



**Fact 2**

Thermal Test	Heatsink Area			
	CPU Temp	NB Temp	SB Temp	Heatsink Average Temp
WAFER-9371A	56.4°C	56.3°C	55.5°C	56.06°C
9371	57.4°C	57.3°C	56.3°C	57.0°C

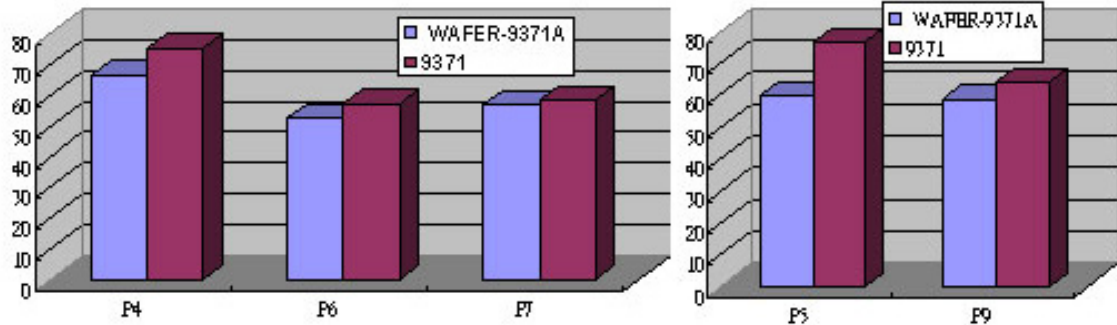


Based on the same CPU, NB, and SB components, the WAFER-9371A presents the better thermal transfer through the heatsink, therefore is ideal for fanless applications.



Fact 3

Thermal Test	Board Area 1 and 2					
	Area 1				Area 2	
	P4	P6	P7	P8	P5	P9
WAFER-9371A	66.7°C	52.5°C	56.8°C	NA	60.0°C	58.9°C
9371	75.3°C	57.4°C	58.3°C	60.4°C	76.8°C	64.1°C

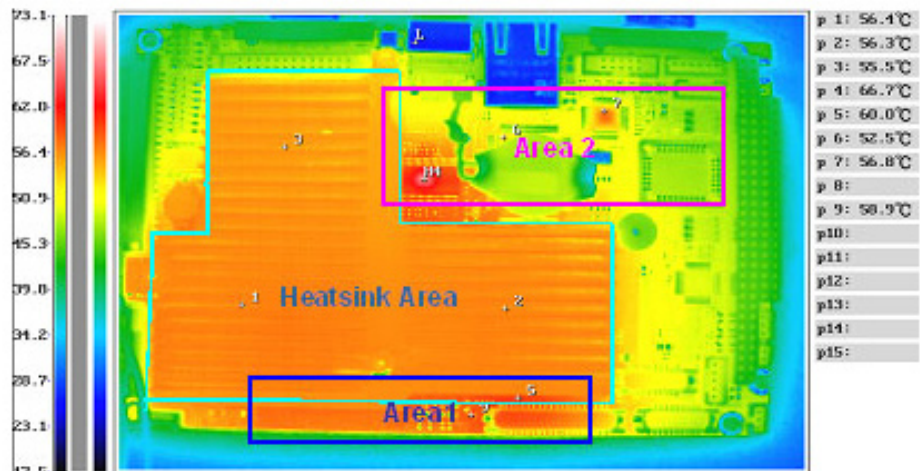


Proven by the numbers deducted from the same area comparison in multiple hot spots, the WAFER-9371A is thermally superior and more apt for embedded systems.

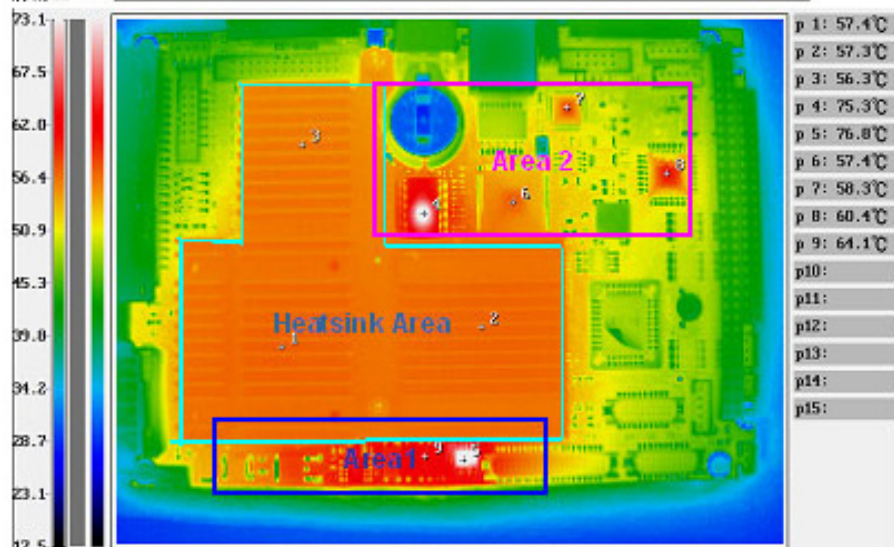


Fact 4

IEI WAFER-9371A



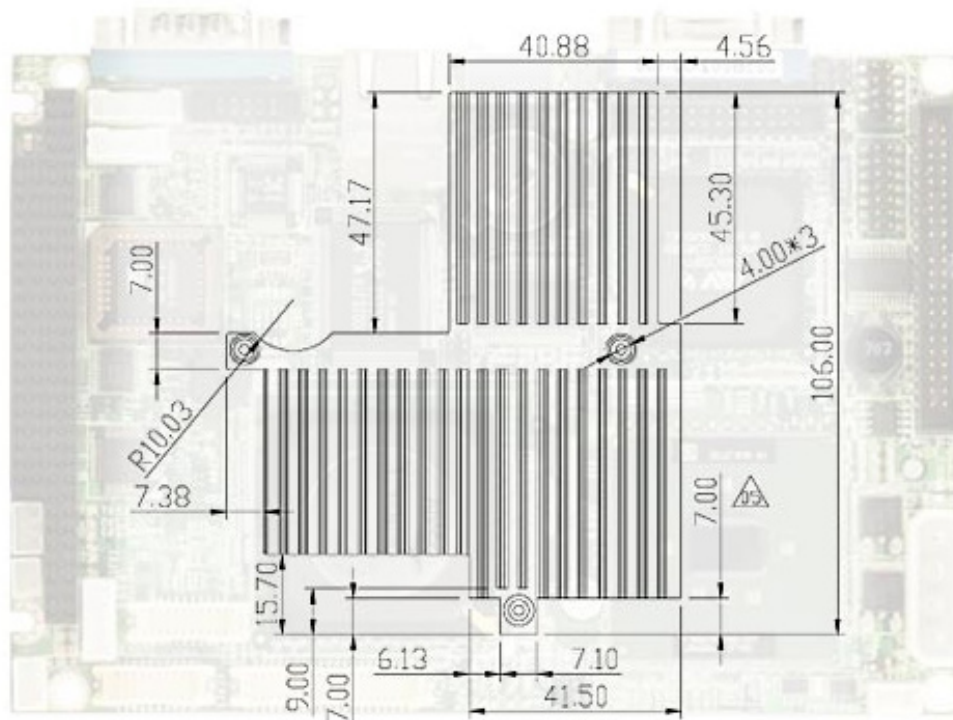
A-Brand 9371



A new heatsink tops three major heat-emitting chips and effectively dissipates heat. Helped by a new layout, once again the WAFER-9371A is proved to be a cooler choice.

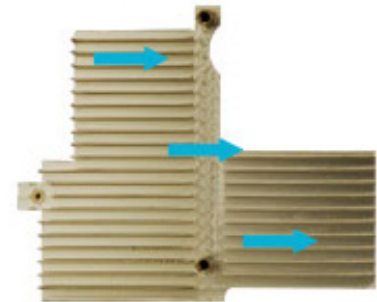
## Cool and Quiet

### All New Heat-Sink design



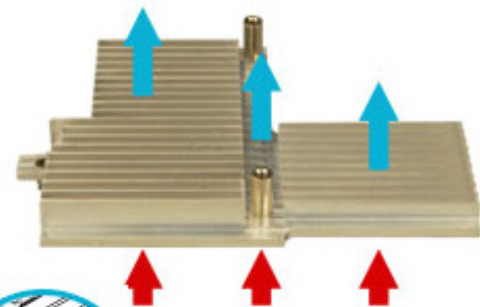
#### Good aerodynamics

The IEI Heatsink was designed in a way that air can easily and quickly float through the cooler, and reach all cooling fins. Especially it having a very large amount of fine fins.



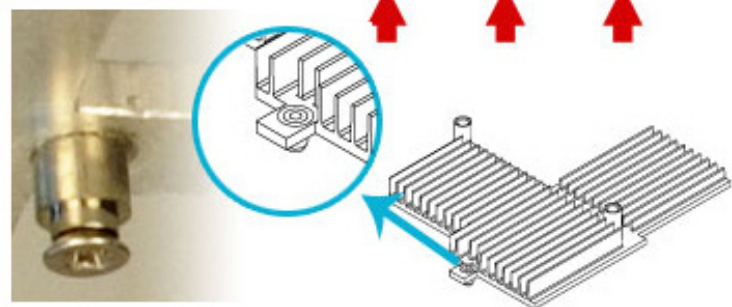
#### Perfect flatness of the contact area by IEI new close flatness technology !!!

The part of the heatsink that is in contact with the heat source must be perfectly flat. A flat contact area allows you to use a thinner layer of thermal compound, which will reduce the thermal resistance between heatsink and heat source.



#### Good mounting method

For good thermal transfer, the pressure between heatsink and heat source must be high. IEI Heatsink clips was designed to provide a strong pressure, while still being reasonably easy to install.

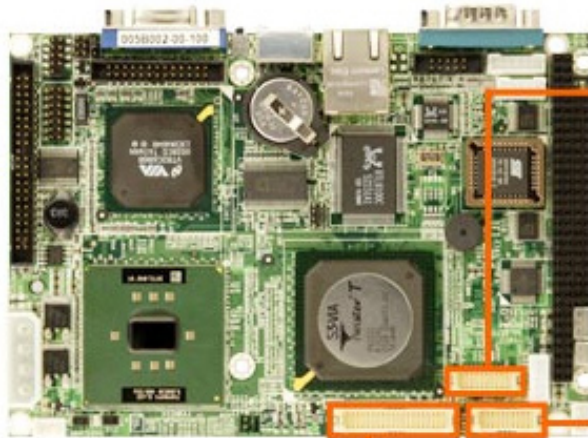


#### Good thermal transfer within the heat sink

Large cooling fins are pointless if the heat can't reach them, so the IEI heatsink was designed to allow good thermal transfer from the heat source to the fins.

### ▶ Complete and Easy LCD Support

- ▶ One 36 bit TFT, 16-bit or 24-bit LCD panel, with up to 1024 x 768 resolution supported
- ▶ 2 channel LVDS interface supported



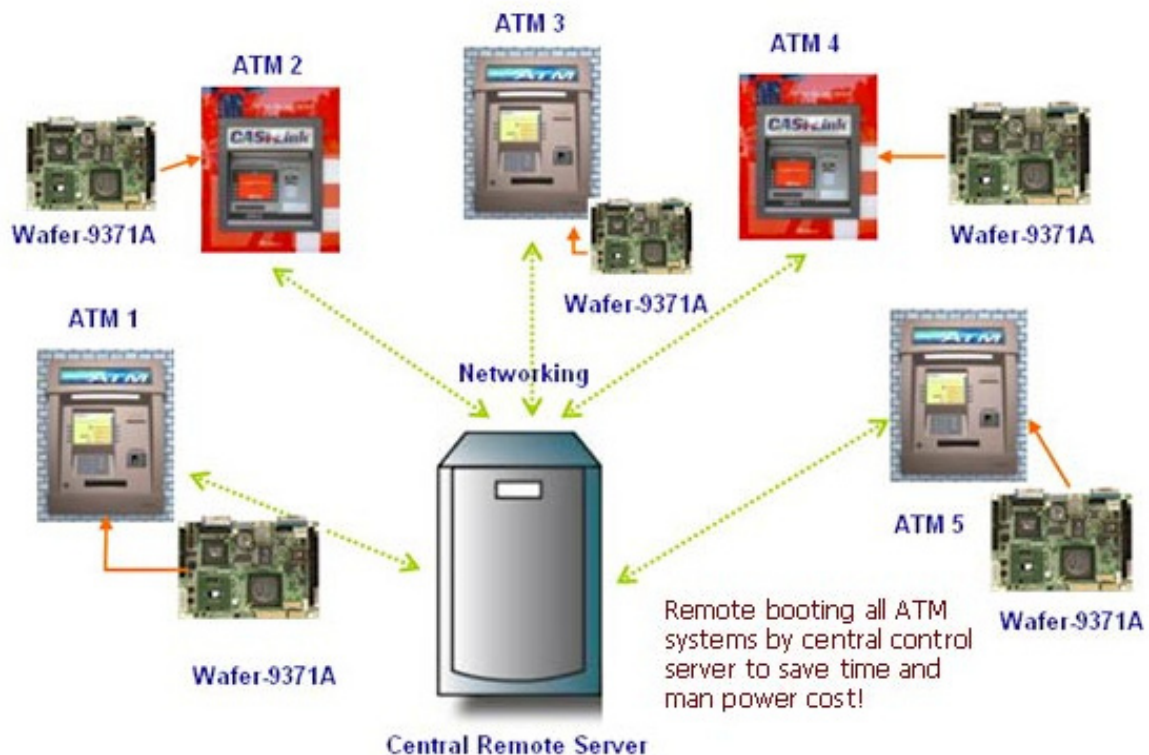
With the VIA Twister chip that supports Dual channel (2 x 18 bit) LVDS LCD panel displays. Connect to either an 18-bit

Supports a 36-bit LCD panel which must be connected to both the Flat1 (40-pin) and the Flat2 (20-pin).

The Flat1 40-pin connector which can support a 24-bit LCD panel

### ▶ Diskless Booting

IEI BIOS PXE feature supports Boot-on-LAN with ATX power supply



#### ▶ PXE: Pre-Boot Execution Environment

PXE is an open industry standard developed by a number of software and hardware vendors. IEI BIOS PXE Feature allows a workstation to boot from a server on a network prior to booting the operating system on the local hard drive. In order to boot on LAN, it requires setting up the PXE server, too.

## ▶ Performance Test

### ▶ System Configuration

**BIOS:** WAFER-9371A V 1.0

**Memory:** 512MB SO-DIMM X 1

**VGA Card:** VIA 8606 (Onboard VGA) Resolution 1024x768 ,32 bit Color

**HDD:** Maxtor-80GB YAR410BWO

**DVD-ROM:** LITE-ON 16X DVD-ROM SOHC-5232K

**O.S:** Windows 2000 / SP4

Software	Celeron-400MHZ
Business Winstone 2001 V1.02	19.1
C.C Winstone 2001 V1.0	27.3
CPU Mark(TM)99 Version 1.0 Score	38.6
Winbench 99 Business Graphic Winmark	108
Winbench 99 High-End Graphic Winmark	270
3D Mark® 2001 SE Build 330	348
PCMARK 2002 PRO CPU Score	1237
Memory Score	818
HDD Score	733
HD Tech V2.70 - Read Speed	Read Speed: 23.1MB/s
	CPU utilization: 8.6%

### ▶ Compatible Test

Test Description	Test Result (Pass/Fail)	Remark
1. MS-DOS 6.22	Pass	*1 No driver support, only for install
2. MS-Windows 98SE	Pass	
3. MS-Windows ME	Pass	
4. MS-Windows NT Server V4.0	Pass	
5. MS-Windows NT Workstation V4.0	Pass	
6. MS-Windows 2000 Professional	Pass	
7. MS-Windows 2000 Server	Pass	
8. MS-Windows XP (Home Edition / Professional)	Pass	
9. QNX RTP 6.2.1	*1	
10. NetWare 5.0	Pass	
11. SCO Open Server 5.0.6	*1	
12. OPEN UNIX 8.0	*1	
13. Linux-Fedora Core 3 / SuSE 9.0 / Mandrake 9.2	Pass	
14. Win CENET 5.0	Pass	
15. Win XPE	Pass	



► Performance Test

WAFER-9371A SISOft Sandra Standard		
Function	Item	Score
CPU	Dhrystone ALU	1309 MIPS
	Whetstone FPU/SSE	541 MFLOPS
CPU-Media	Integer X 4 iSSE	3511 IT/s
	Floating-Point X 4 iSSE	4150 IT/s
Drives	Hard Disk (C:) Drive Index	29 MB/s
	Hard Disk (D:) Drive Index	
CD-ROM / DVD	Drive Index	
Memory	Int ALU / RAM Bandwidth	458 MB/s
	Float FPU / RAM Bandwidth	448 MB/s

## ▶ RoHS Compliance

IEI is committed to compliance with all applicable laws and regulations, including the European Union Restriction of Hazardous Substances (RoHS) in electrical and electronic products. IEI's goal is to exceed compliance obligations by meeting the requirements of the RoHS Directive on a worldwide basis.

**IEI use the most Hi-End equipment to achieve RoHS requirement!**

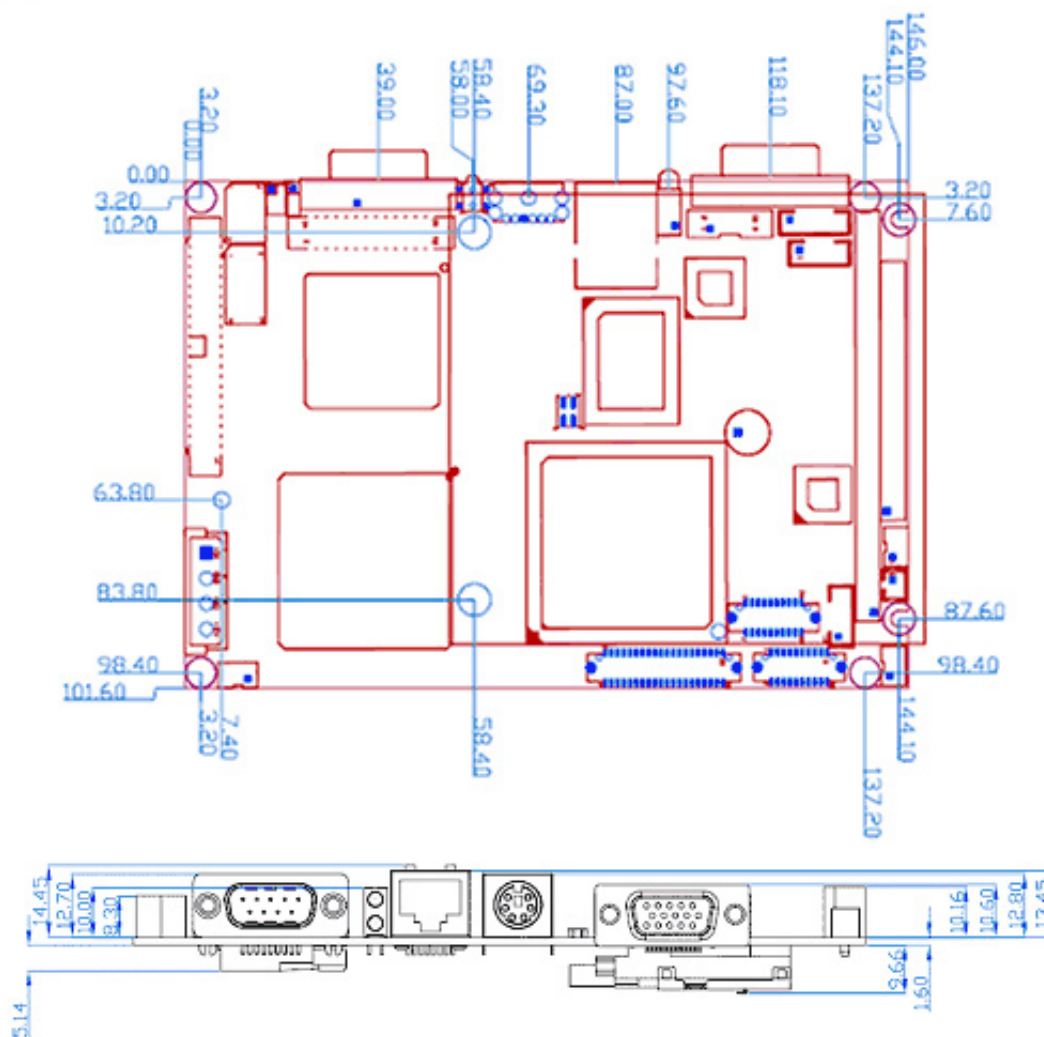


### .....● SPECTRO XEPOS

**Military Level  
Bench top X-Ray Fluorescence Spectrometer**

Companied by the incoming material, especially for Cr, PBB, PBDE.

## ▶ Dimension



## ▶ WAFER-9371A Specification

### ◆ CPU

ULV Intel® Celeron® 400MHz  
ULV Intel® Celeron® 650MHz

### ◆ 2nd Cache Memory

256 KB for Celeron® / 512 KB for Pentium® III

### ◆ System Chipset

VIA VT8606 + VIA VT82C686B

### ◆ BIOS

AMI BIOS

### ◆ System Memory

144-pin PC100/133 SO-DIMM SDRAM up to 512MB

### ◆ Ethernet

Chipset : Realtek 8100C  
Speed : 10/100 Mbps  
Standard : Supports Full Duplex Flow Control (IEEE 802.3x)

### ◆ I/O

#### I/O Interface

2 x USB 1.1  
1 x EIDE  
1 x CF  
1 x KB/MS  
1 x RS-232  
1 x RS-232/422/485  
1 x LPT

#### Audio

AC'97 Codec ALC655 5.1CH

#### IrDA

115kbps. IrDA 1.1 compliant

### ◆ Display

#### Graphic Controller

VIA VT8606 Twister chip with Integrated S3 Savage4, support CRT and LVDS display.

#### Memory Size

8/16/32 MB frame buffer shared with system memory

#### Resolution

CRT : 1280 x 1024 @ 60Hz ; 1024 x 768 @ 85Hz  
LCD : 1280 x 1024 @ 60Hz ; 1024 x 768 @ 60Hz

#### LCD Interface

AGPx4 VGA/LCD interface. Support 18, 24, 36bit panels up to SXGA quality.

#### LVDS Interface

Dual Channel (2 x 18-bit) LVDS interface

### ◆ Watchdog Timer

Software programmable supports 1~255 sec. system reset

### ◆ Power Supply

+5 V ± 5%

### ◆ Power Consumption

5V@2.01A (Celeron® 400MHz with PC100/133 256MB RAM)

### ◆ Temperature

operation: 0 ~ 60° C (32 ~ 140° F)

### ◆ Humidity

operation: 0% ~ 90% Relative Humidity

### ◆ Dimension

145 mm x 102 mm (5.7" x 4")

### ◆ Weight

0.24kg ( board only)/0.67kg (total package)

## ▶ WAFER-9371A Ordering Information

### Packing List

1 x WAFER-9371A	1 x Keyboard/ PS2 mouse cable (P/N: 32000-000138-RS)
1 x IDE flat cable 44p/40p/40p ( P/N: 32200-000009-RS)	1 x USB cable (P/N: 32000-073400-RS)
1 x Second serial port cable (P/N: 32200-000061-RS)	1 x Utility CD
1 x Audio cable (P/N: 32000-072100-RS)	1 x QIG ( quick installation guide)
1 x Mini Jumper Pack (P/N: 33100-000079-RS)	

### Ordering Information

Part No.	Description
WAFER-9371A-R10	ULV Intel® Celeron® 3.5" SBC w/400 MHz CPU, VGA/LCD, LVDS, Ethernet, Audio
WAFER-9371A-650-R10	ULV Intel® Celeron® 3.5" SBC w/650 MHz CPU, VGA/LCD, LVDS, Ethernet, Audio
WAFER-9371A-CENET5.0 ( Free NRE Charge)	ULV Intel® Celeron® 3.5" SBC w/400 MHz CPU, VGA/LCD, LVDS, Ethernet, Audio, IFM32MB, WinCE5.0 Image
WAFER-9371A-WINXPE ( Free NRE Charge)	ULV Intel® Celeron® 3.5" SBC w/400 MHz CPU, VGA/LCD, LVDS, Ethernet, Audio, IFM512MB, WinXPE Image
32200-015100-RS	LPT cable