

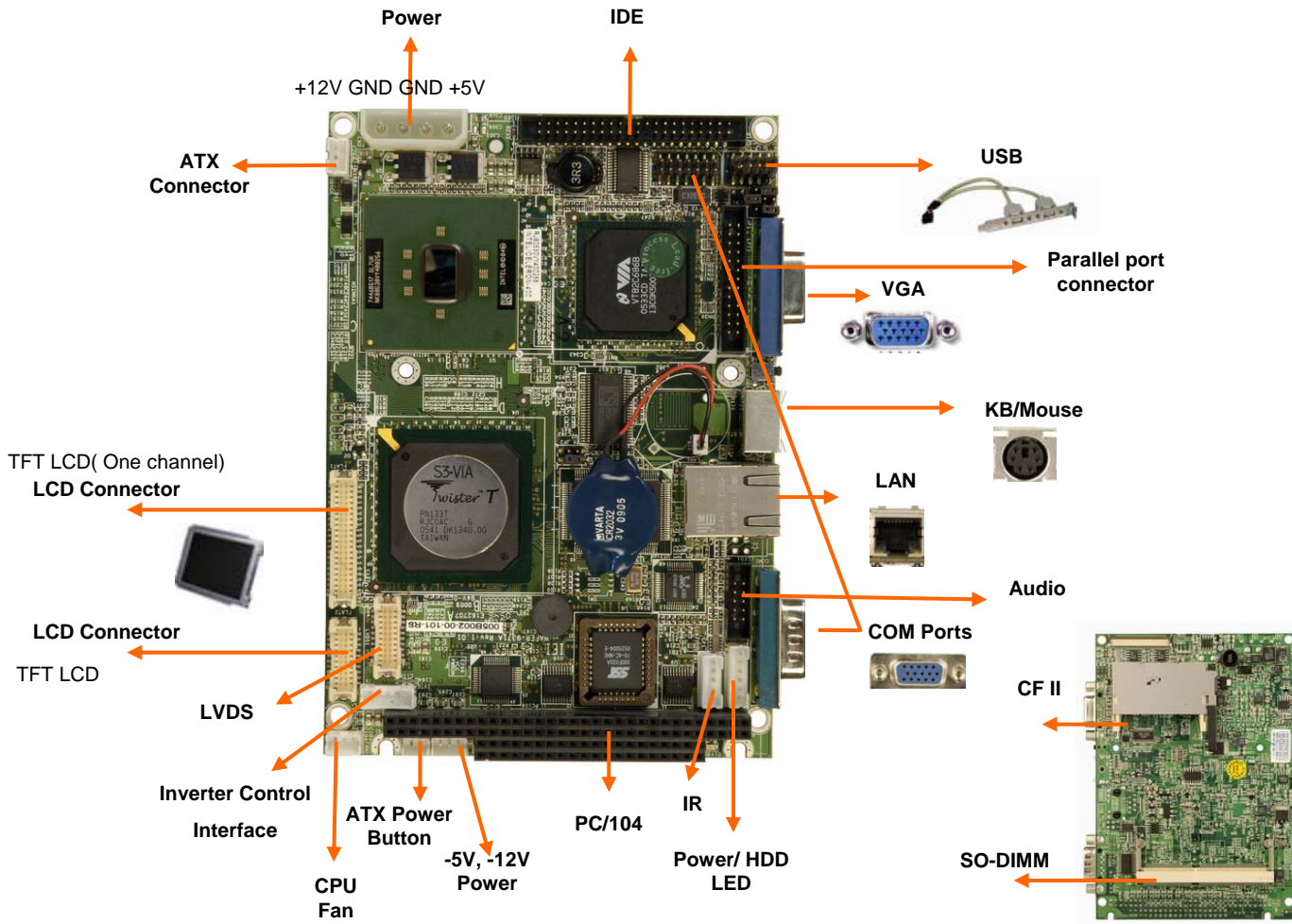


RoHS ready

# WAFER-9371A

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

### Cool, Quiet and LCD Support Has Never Been Easier !!



## Features

### Cool and Quiet

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

### 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

### Diskless Booting

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

### Green Product

- . RoHS Compliance

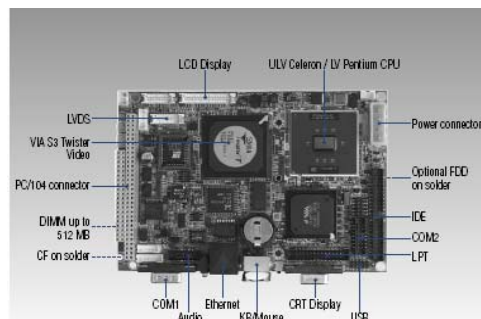
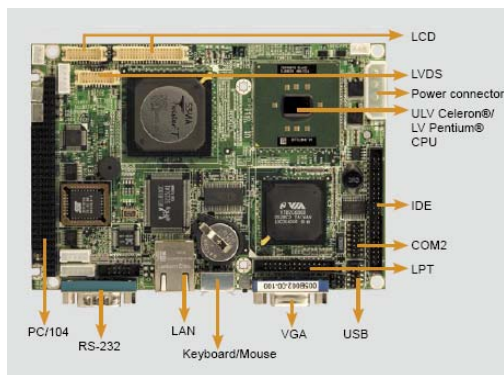
# RoHS ready now !



## 28% Power Saving !

RoHS

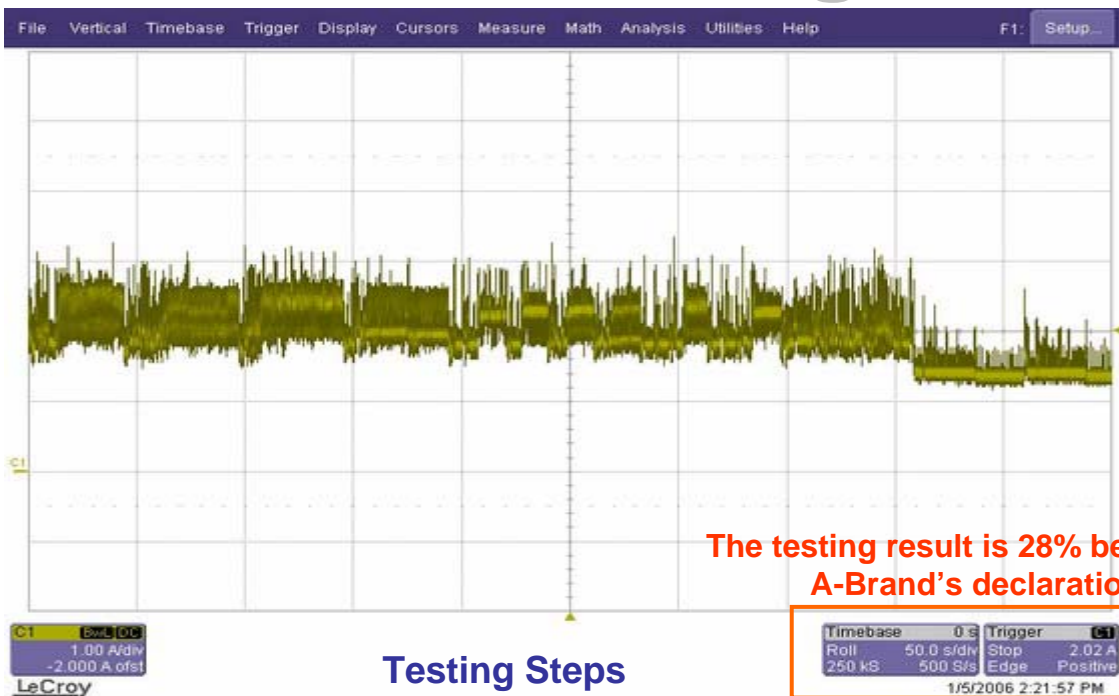
Low Power



	IEI	A Brand
Product	WAFER-9371A	9371
Form factor	3.5" SBC	3.5" SBC
CPU	ULV Intel Celeron 400	ULV Intel Celeron 400
NB	VT8606T	VT8606T
SB	VT82C686B	VT82C686B
Display	CRT 36-bit TTL 2x18 bit LVDS	CRT 36-bit TTL 2x18 bit LVDS
I/O Interface	1x EIDE 1x FDD(optinal) 1x K/B 1x M/S 1x RS-232/422/485 1x RS232 1x LPT	1x EIDE 1x FDD(optinal) 1x K/B 1x M/S 1x RS-232/422/485 1x RS232 1x LPT
RoHS avaiable	<b>Now</b>	No
Ethernet	<b>10/100Mbps RTL8100C</b>	10/100Mbps RTL8100BL
USB	2x USB 1.1	2x USB 1.1
Audio	<b>ALC655 5.1CH</b>	ALC202A 2.1CH
IrDA	115kbps	115kbps
WDT	<b>1~255 sec</b>	1~62 sec
Power Consumption	<b>5V@2.01A ULV Celeron 400/256MB</b>	<b>5V@2.79A ULV Celeron 400/256MB</b>
Dimention	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

<b>CPU Type</b>	Celeron(R) 400MHz	<b>RAM Module</b>	Transcend PC133 256M
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### Install OS: Windows 2000

### 3D Mark 2001

<b>VGA Type</b>	S3-VIA Twister™ T	<b>DirectX</b>	9.0b
<b>Resolution</b>	800 X 600	<b>Color Pixel</b>	32
<b>VGA Memory</b>	8M	<b>Score</b>	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.

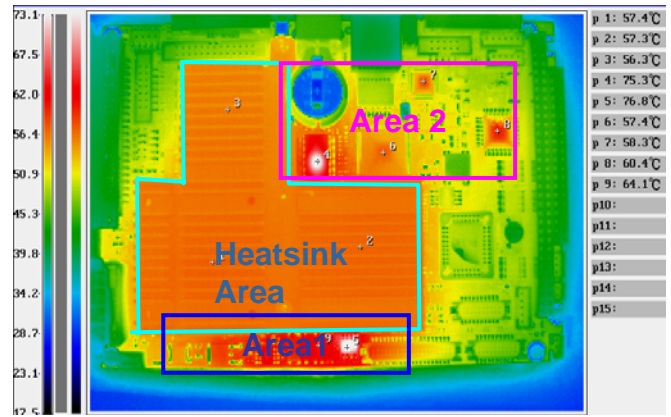
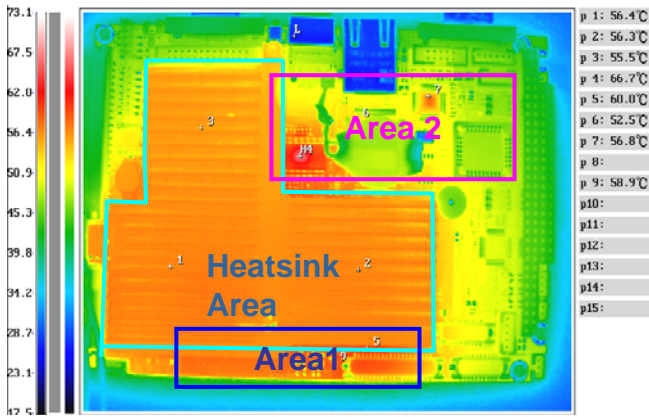
**Brand** NIPPON

**Model** Neo Thermo TVS-700

## Testing Result !

IEI WAFER-9371A

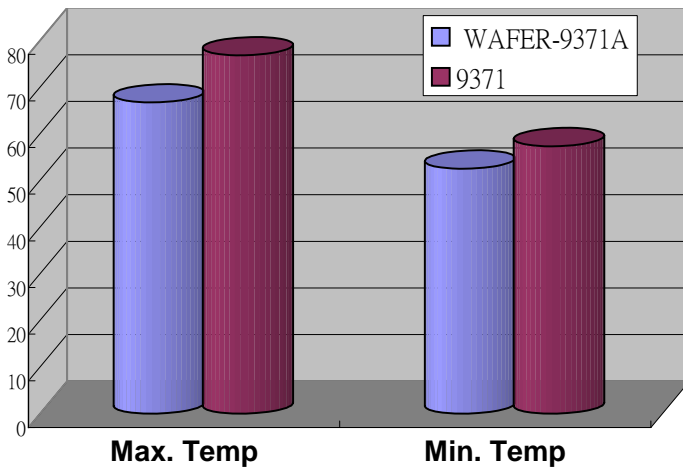
A-Brand 9371



**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

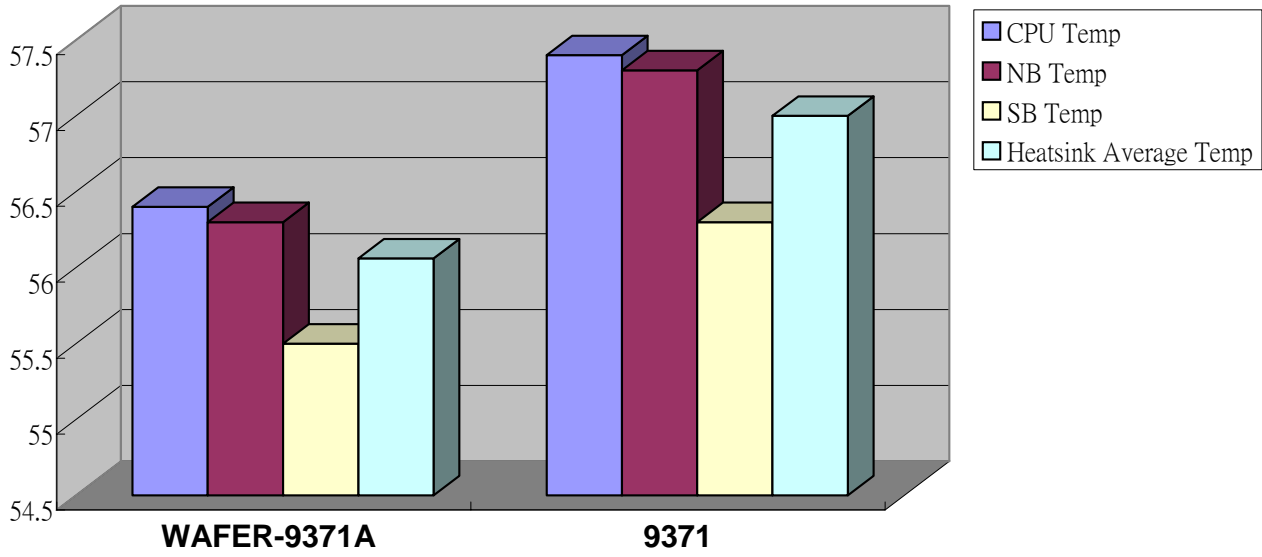
WAFER-9371A temp range : 14.2 °C  
 9371 temp range : 19.5 °C



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**

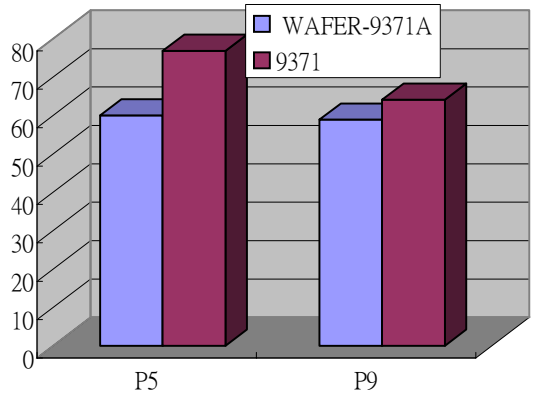
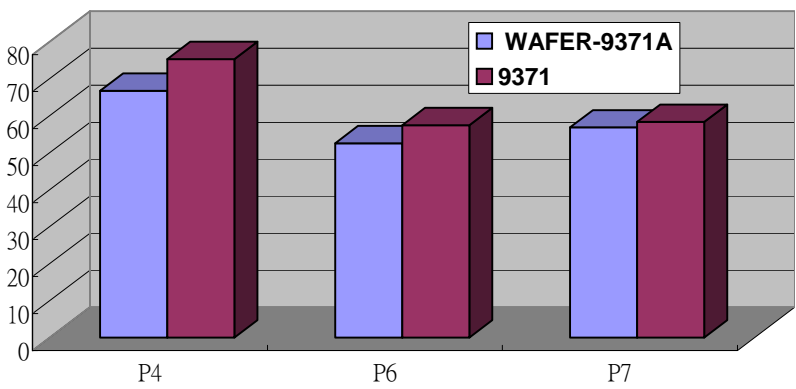
Thermal Test	Heatsink Area			
	CPU Temp	NB Temp	SB Temp	Heatsink Average Temp
WAFER-9371A	56.4°C	56.3°C	55.5°C	56.06°C
9371	57.4°C	57.3°C	56.3°C	57.0°C



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**

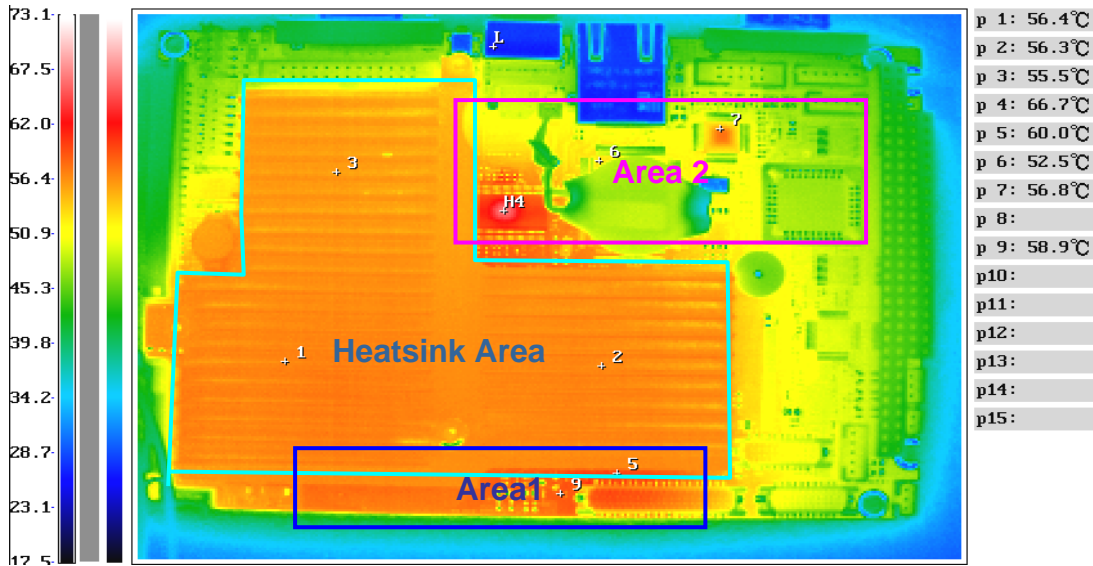
Thermal Test	Board Area 1 and 2					
	Area 1				Area 2	
	P4	P6	P7	P8	P5	P9
WAFER-9371A	66.7°C	52.5°C	56.8°C	NA	60.0°C	58.9°C
9371	75.3°C	57.4°C	58.3°C	60.4°C	76.8°C	64.1°C



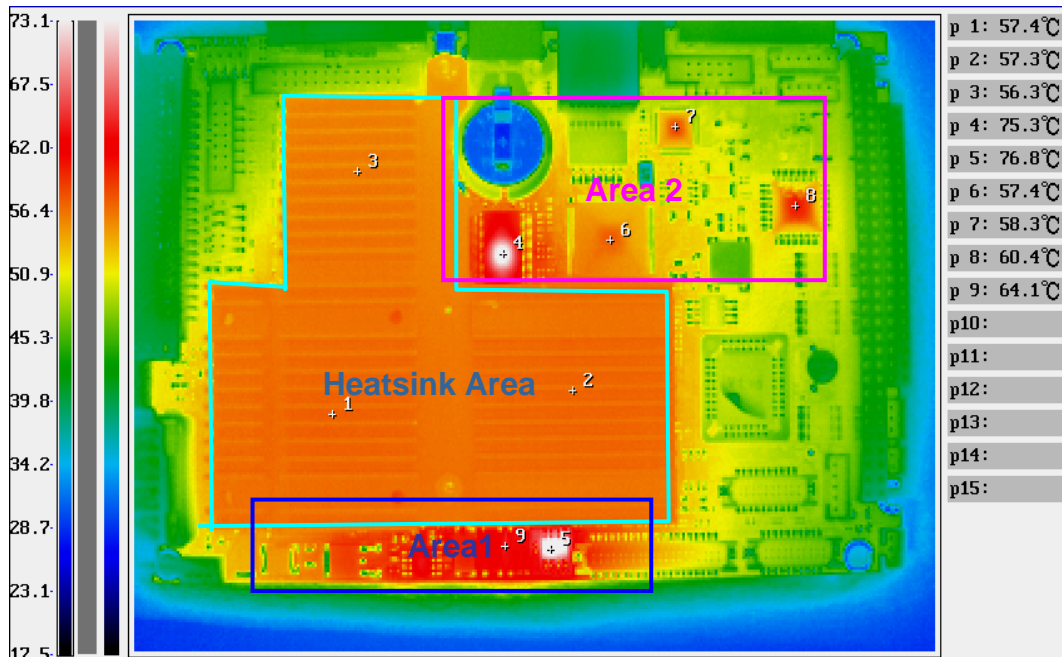
Proven by the numbers deducted from the same area comparison in multiple hot spots, the WAFER-9371A is thermally superior and more apt for embedded systems.

**Fact 4**

**IEI WAFER-9371A**



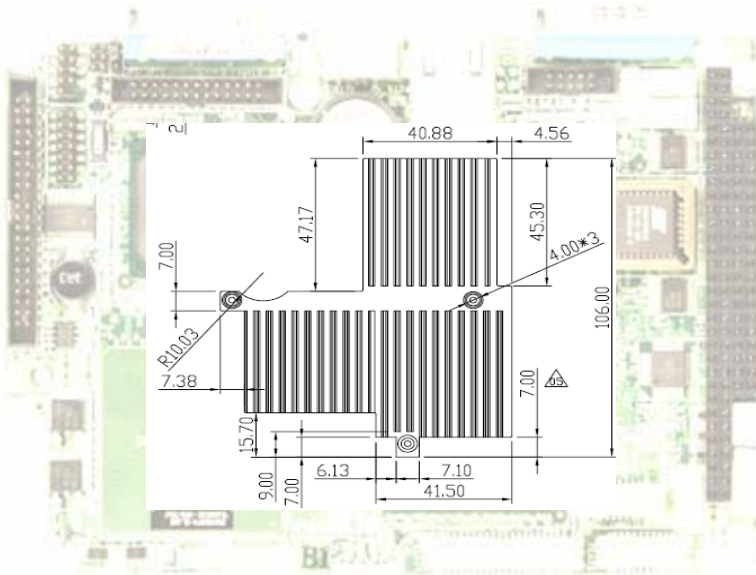
**A-Brand 9371**



**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.**

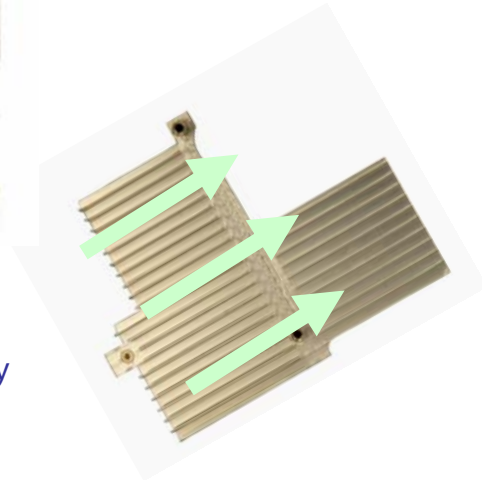
# Cool and Quiet

## All New Heat-Sink design



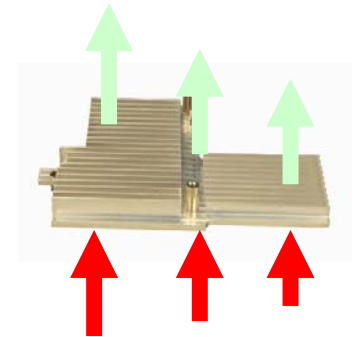
### I. Good aerodynamics

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.



### II. 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.



### III. 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.

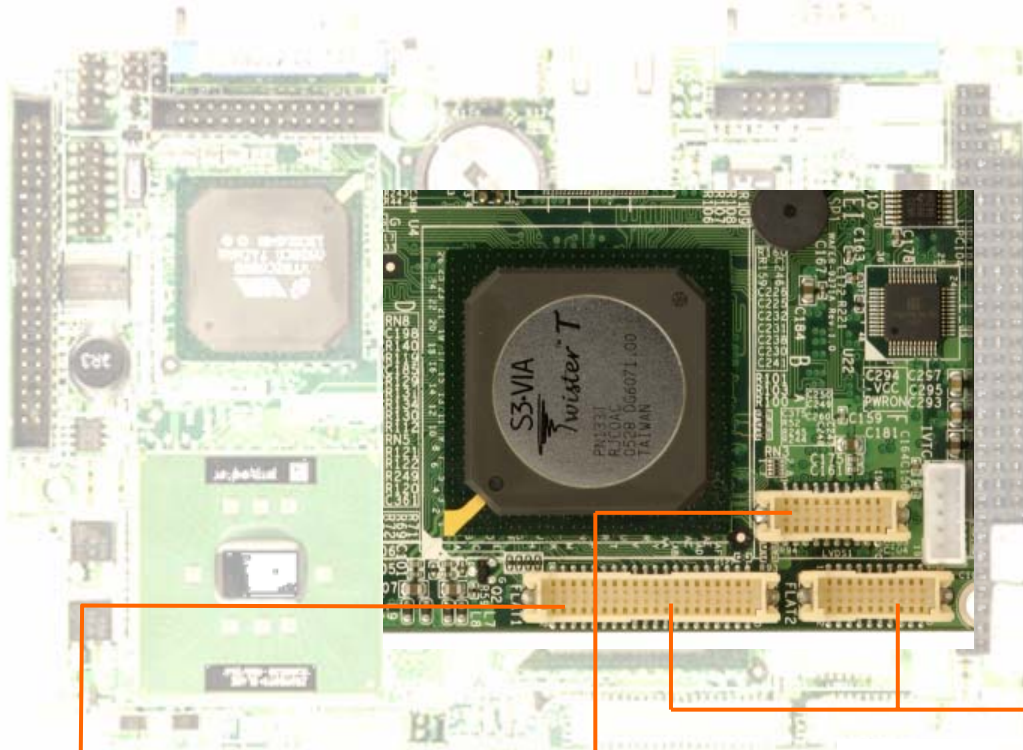


### IV. Good thermal transfer within the heatsink

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



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



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

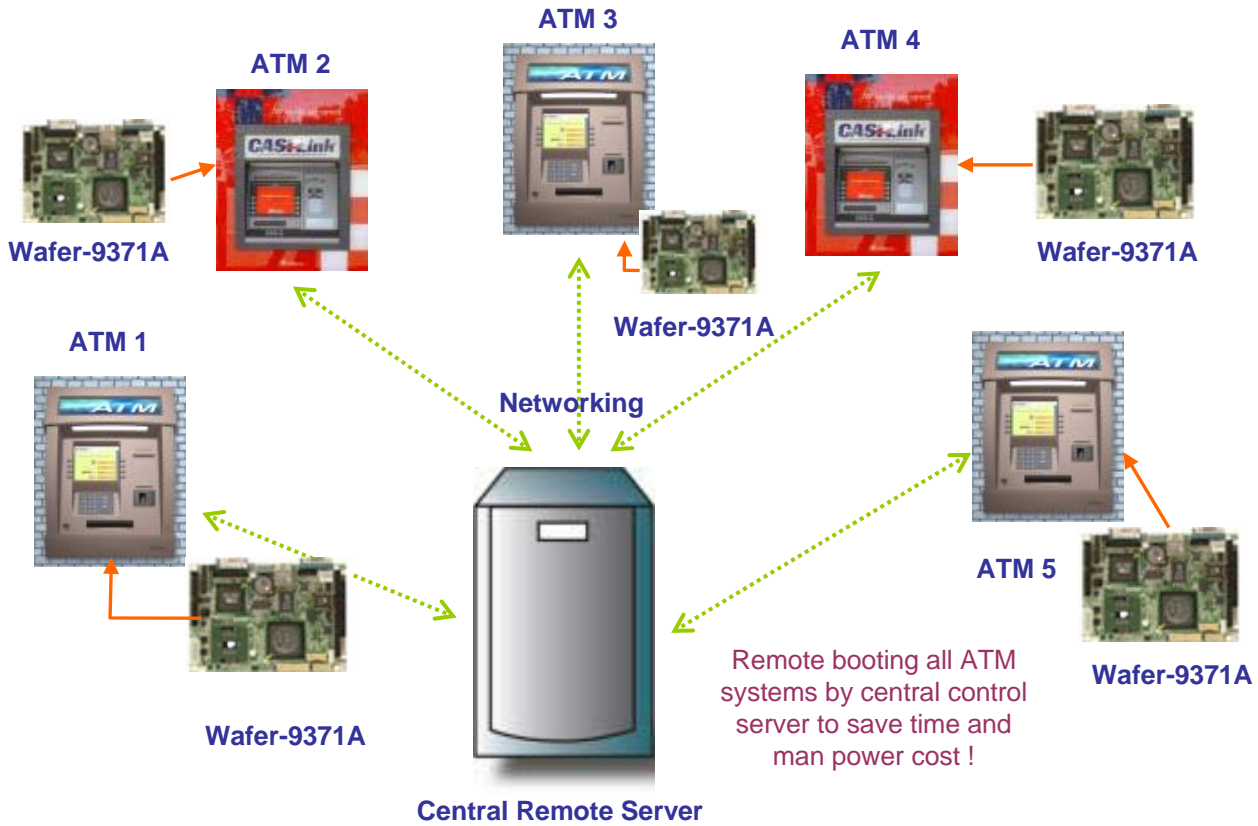
With the VIA Twister chip that supports Dual channel (2 x 18 bit) LVDS LCD panel displays. Connect to either an 18-bit or 36-bit LVDS LCD.





# Diskless Booting

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



**Man Power Saving without booting up system one by one to lower down the total cost !!**

## 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.

## 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!**



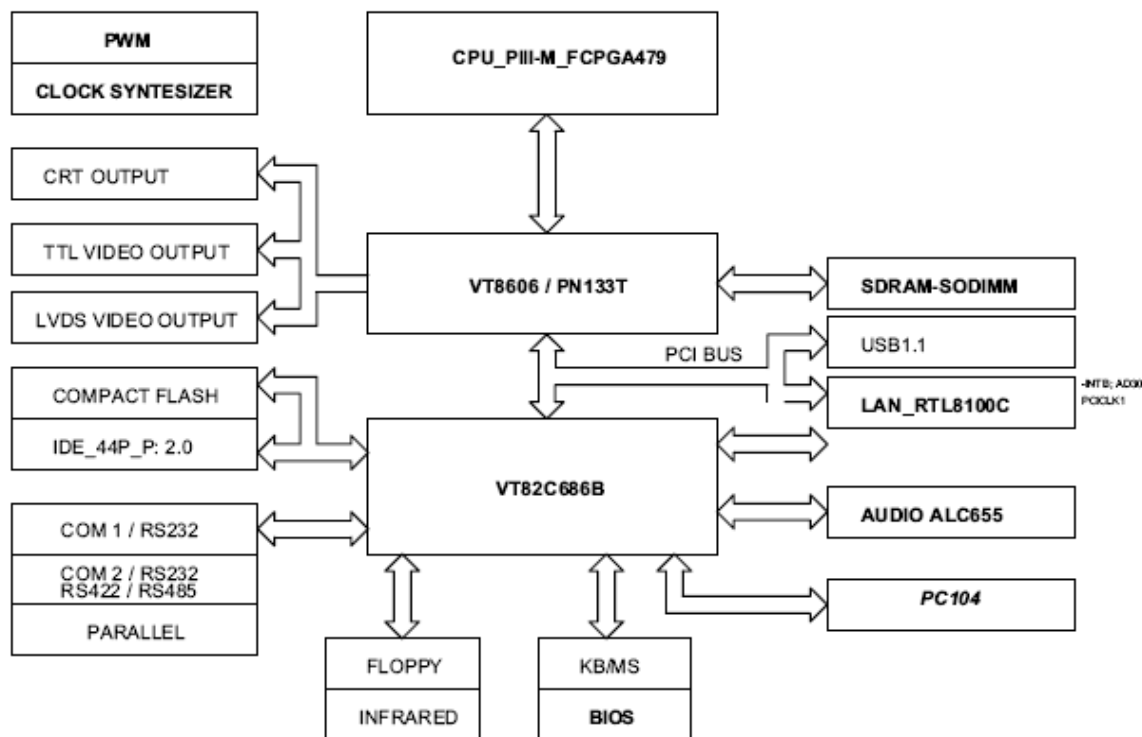
### SPECTRO XEPOS

**Military Level**

**Bench top X-Ray Fluorescence Spectrometer**

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

## Function Block



## 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 YAR410BW0

**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(™)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%

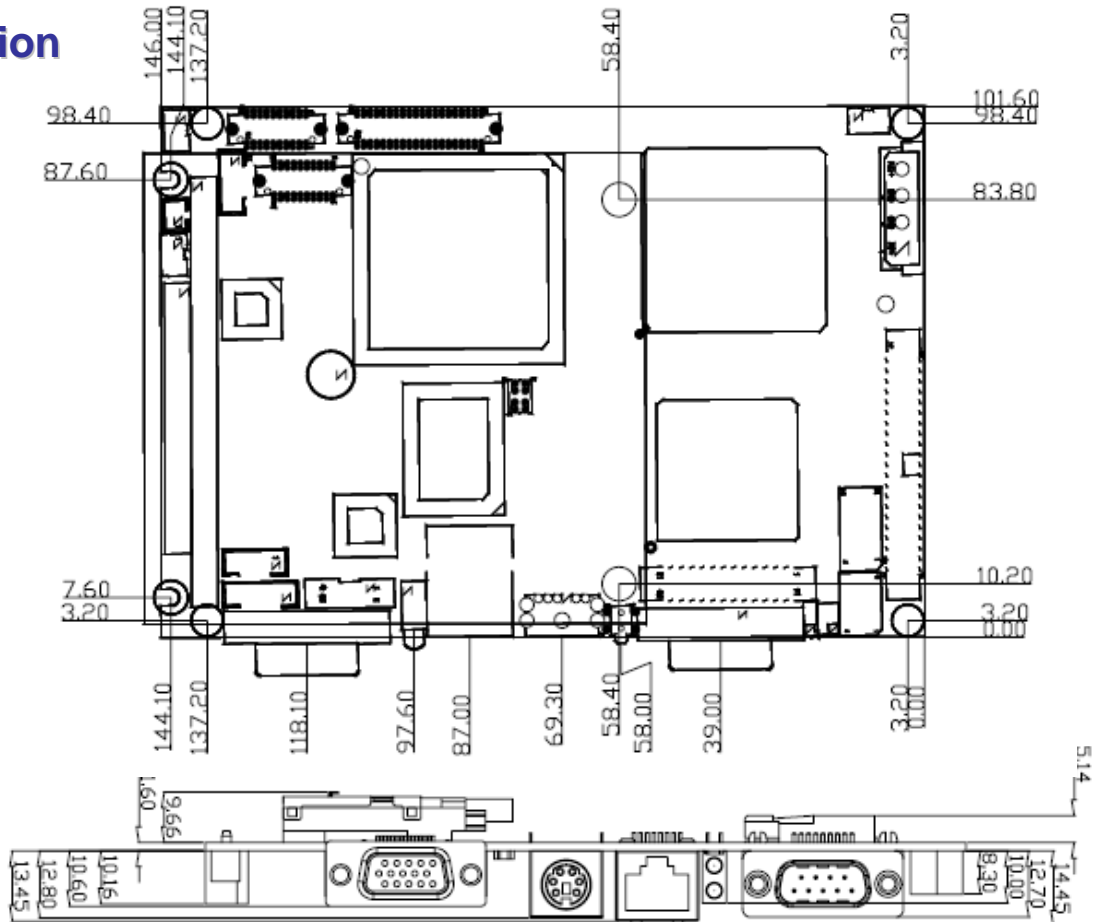
## Compatible Test

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
1. CPU	Dhrystone ALU	1309 MIPS
	Whetstone FPU/SSE	541 MFLOPS
2. CPU-Media	Integer X 4 iSSE	3511 IT/s
	Floating-Point X 4 iSSE	4150 IT/s
3. Drives	Hard Disk (C:) Drive Index	29 MB/s
	Hard Disk (D:) Drive Index	
4. CD-ROM /DVD	Drive Index	
5. Memory	Int ALU /RAM Bandwidth	458 MB/s
	Float FPU /RAM Bandwidth	448 MB/s

## Dimension



# Specification

## CPU

ULV Intel® Celeron® 400MHz

ULV Intel® Celeron® 650MHz

## System Chipset

VIA VT8606 + VIA VT82C686B

## DRAM

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

## 2nd Cache Memory

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

## LCD Interface

### Display Controller

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

### Memory Buffer

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

4XAGP VGA/LCD interface. Support 18, 24, 36bit TFT

### LVDS Interface

Dual Channel (2 x 18-bit) LVDS interface

## Graphic Controller

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

## Audio

AC'97 Codec ALC655 5.1CH

## Watchdog Timer

1-255 sec ICP6629;

## Dimension

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

## Ethernet

Chipset : Realtek 8100C

Speed : 10/100 Mbps

Standard : Supports Full Duplex Flow Control (IEEE 802.3x)

## Power

+5 V only  $\pm 5\%$ , +12 V  $\pm 5\%$  (for PC/104, LCD)

## Power Consumption

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

## I/O Interface

IDE : 1 x Enhanced IDE , 1 x CFA (II)

Optional Floppy :1x26 connector

Mouse & Keyboard : 1 x PS/2 Keyboard and PS/2 Mouse

Serial Port : 1 x RS232 with D-SUB connector , 1xRS232/422/485 pin header

Parallel Port : 1 share with Floppy

USB: 2 X USB 1.1

## Temperature

operation: 0 ~ 60° C (32 ~ 140° F)

## Humidity

Operation: 0% ~ 90% Relative Humidity

# 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

## Packing List

1 x Wafer-9371A  
1 x Mini Jumper Pack  
1 x IDE flat cable 44p/40p  
1 x Keyboard/ PS2 mouse cable  
1 x Second serial port cable

1 x Parallel port cable  
1 x Audio cable  
1 x USB cable  
1 x User manual  
1 x Utility CD

Option	LPT cable	P/N: 32200-015100-RS