

# WAFER-LX

Small, Efficient and Power-saving  
**6W only!**  
3.5" Embedded platform Solution!

James Yang



Solution innovator, Embedded your life



Member of ICP Group 



IEI Technology Corp.

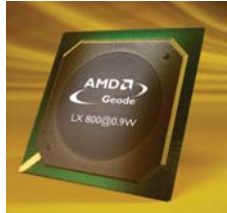
# WAFER-LX

3.5" AMD® Geode LX800 SBC with Onboard , SATA RAID 0,1,JBOD

function support

[www.ieiworld.com](http://www.ieiworld.com)

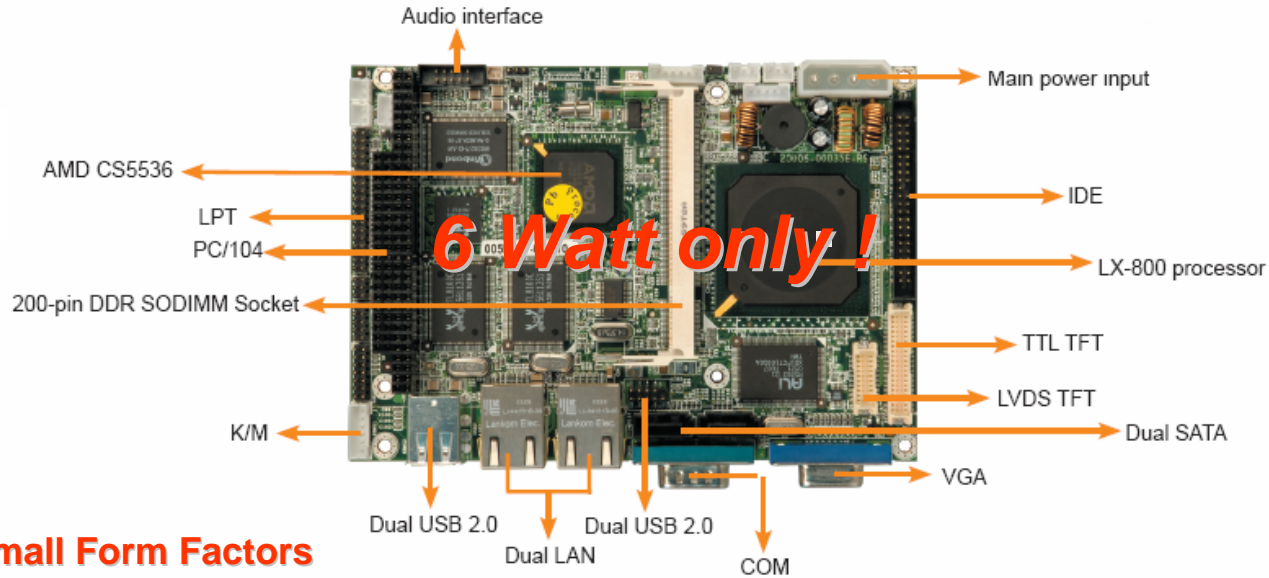
**Ideal Thin Client Solution!**



LX-800



CS5536



## Abundant Capabilities within Small Form Factors

The IEI WAFER LX series is built within a 3.5" form factors measured 146x102mm with complete system functionalities While featuring flexibility, versatility, and enhanced capabilities.

## LOW Power X86 Architecture

The IEI WAFER-LX series runs current operating systems using the flexible x86 instruction set with low **6Watt** power consumption

## Extended Connectivities

Enhanced TTL, LVDS, SATA, and USB 2.0 interfaces for extended connectivities

## Green Product

RoHS Compliance



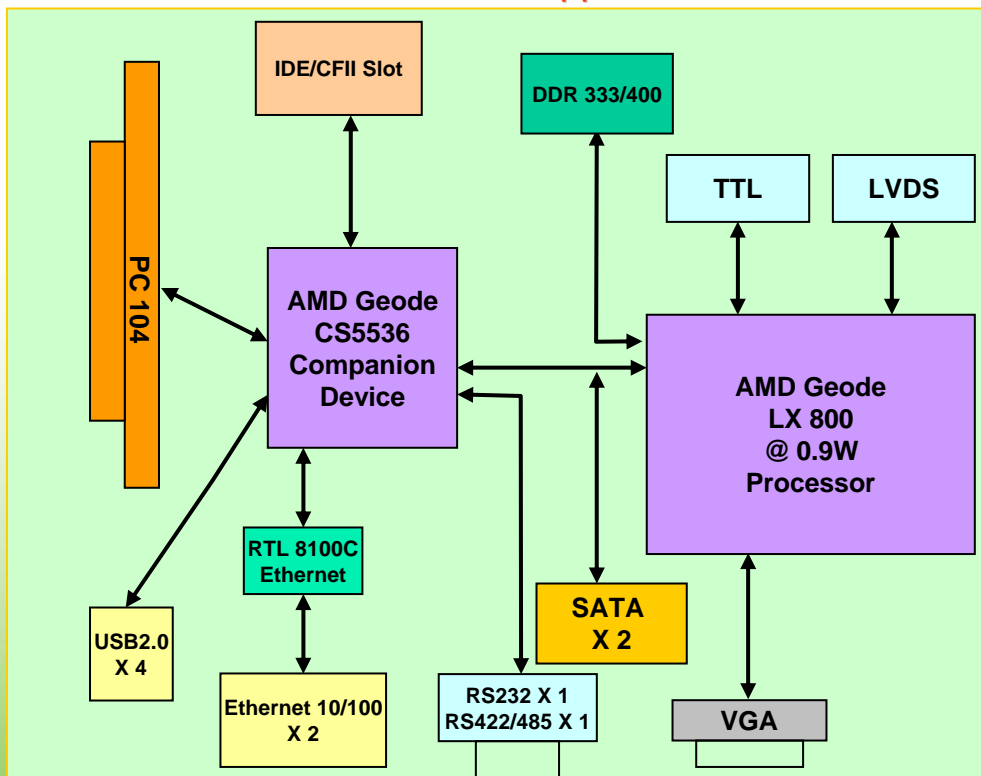
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## Powerful Capabilities within Small Form Factors

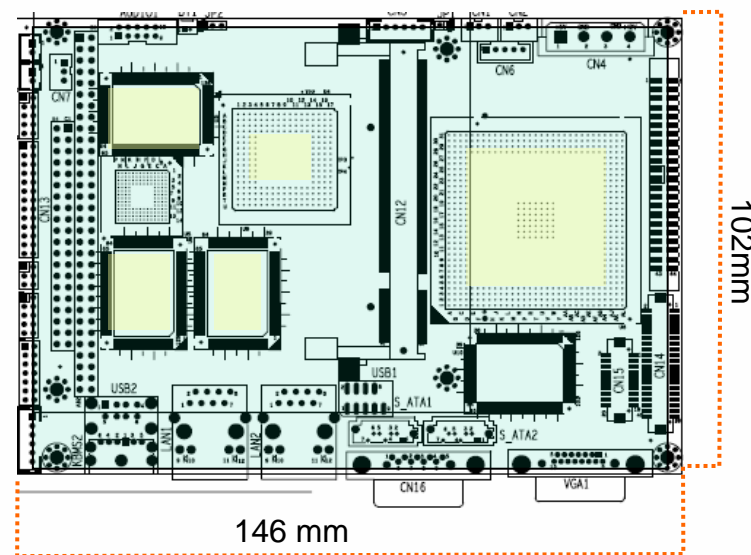
Small yet well beyond the confinement of the 3.5" layout, the WAFER LX sets a new standard for low consumption, performance, and reliability.

### Small size all in one applications

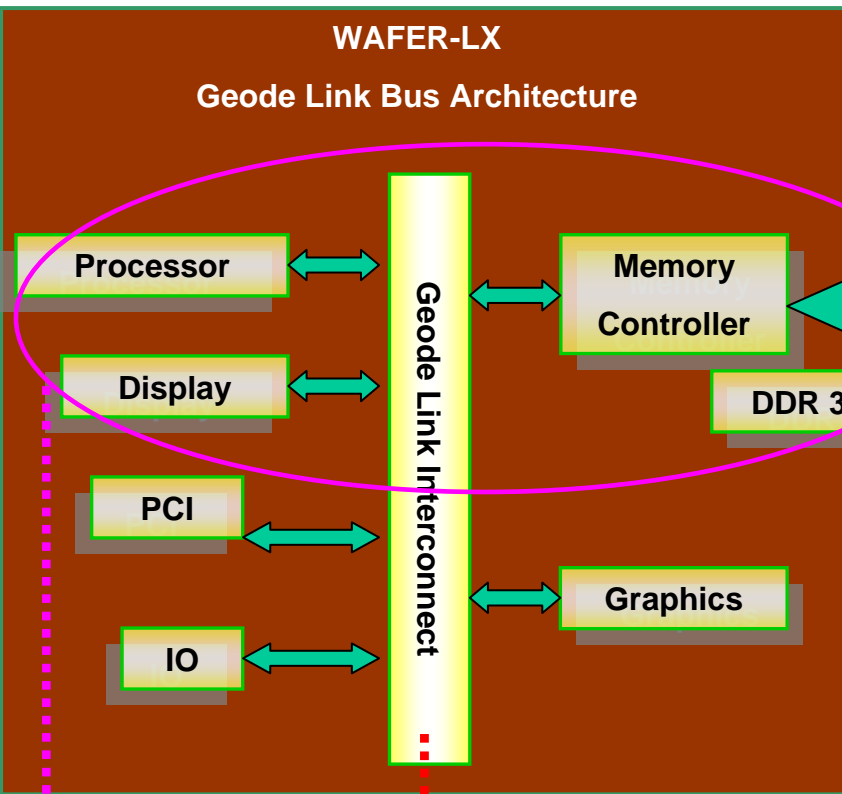


## IEI WAFER LX series

Approximate dimensions are 146mm x 102mm.



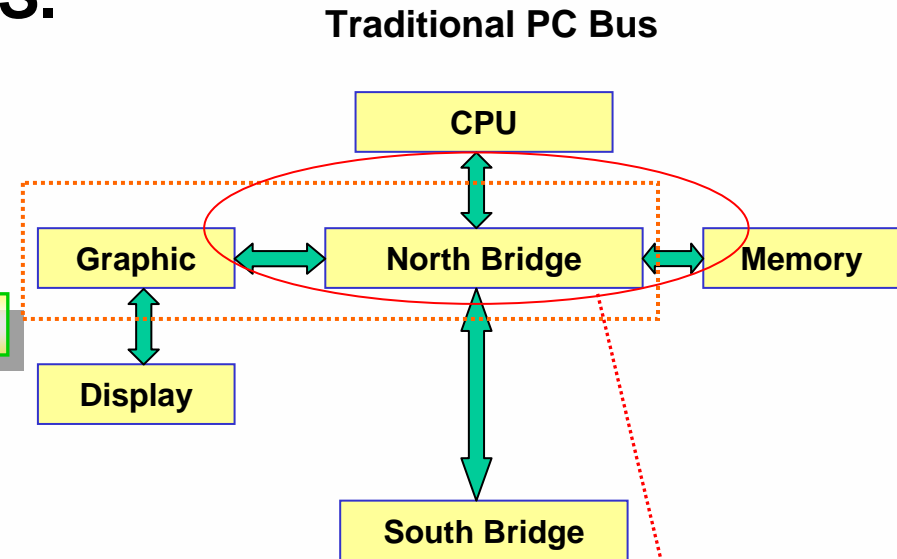
The 3.5" WAFER offers system designers enhanced flexibility, versatility and possibilities with implementations – all in a small, industry-standard package.



Maximum Performance is achieved via the 9.6 GB/s GeodeLink Interconnect Bus

Data moves in and out of the CPU, Memory and Graphics Blocks quickly and efficiently.

**V.S.**



Memory is 2 buses away from CPU and Graphics engine

**Advantage**

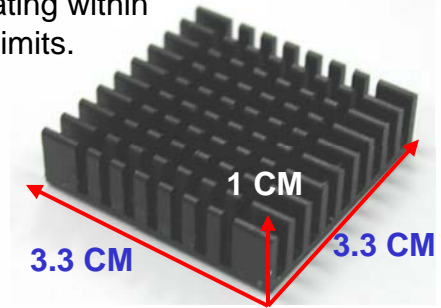
- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>•Extremely Efficient</li> <li>•Centralized bus structure</li> <li>•Maximum performance</li> <li>•Minimum latency</li> </ul> | <p>Single chip with complete NB integrated solution to provide direct performance and minimized power consumption</p> |
|--|---|



p 1:	58.9°C
p 2:	56.6°C
p 3:	65.0°C
p 4:	57.4°C
p 5:	55.3°C
p 6:	57.5°C
p 7:	58.7°C
p 8:	
p 9:	
p10:	
p11:	
p12:	
p13:	
p14:	
p15:	

## Average low heat surface !

To ensure system reliability, it's imperative to keep all components operating within safe temperature limits.



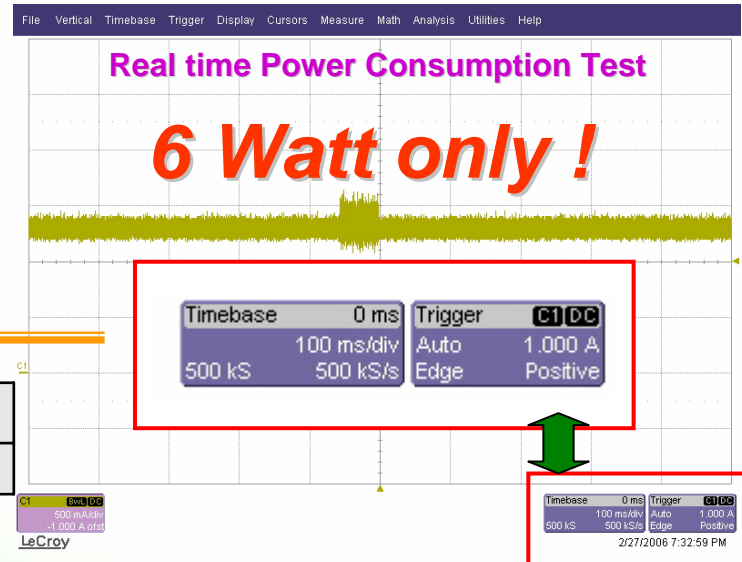
## 1 CM height heatsink !

Meeting your power budget is essential for attaining system performance and cost goals.

Low power enables higher clock frequency, higher reliability, better noise margins, and reduced capital and operational costs.

+5V 10minutes in 25°C (BIOS)
Ampere 1.2

220 W ATX Power Supply

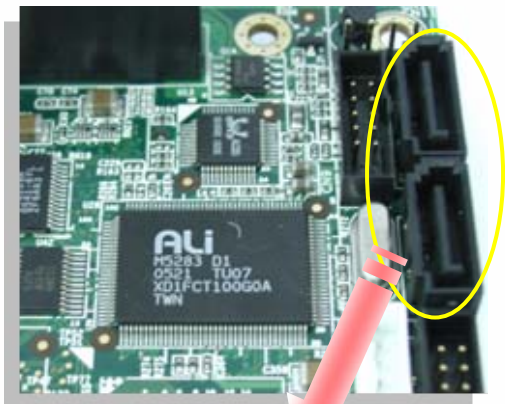


# Extra Data Security !

## DVR + KIOSK + POS all in one solution



### RAID Function Protection



**2 \* SATA HDD,  
hot swappable, maximum capacity**

**WAFFER-LX + RAID Function  
make a total security solution to you !!!**

#### Single disk

**General mode**  
(capacity 250GB\*2)

System recognizes each drive as individual.

#### RAID 0

(disk striping)

**RAID 0 mode**  
(capacity 250GB)

It recognizes 2 hard drive as one large drive, yielding higher performance than single disk mode. No redundancy provision.

#### RAID 1

(disk mirroring)

**RAID-1 mode**  
(capacity 250GB\*2)

All drives are paired and mirrored. All data is duplicated 100% on a separate drive of the equivalent size.

RAID	Raid 0	Raid 1
Minimum Disks Requirement	2	2
Capacity	N	N/2
Redundancy	NO	YES

# Storage Performance with Protection



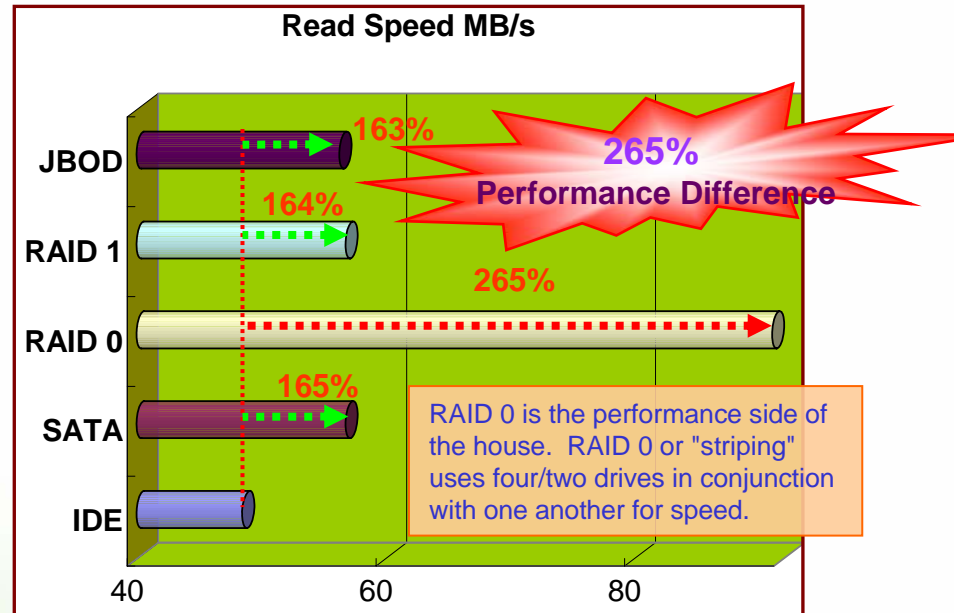
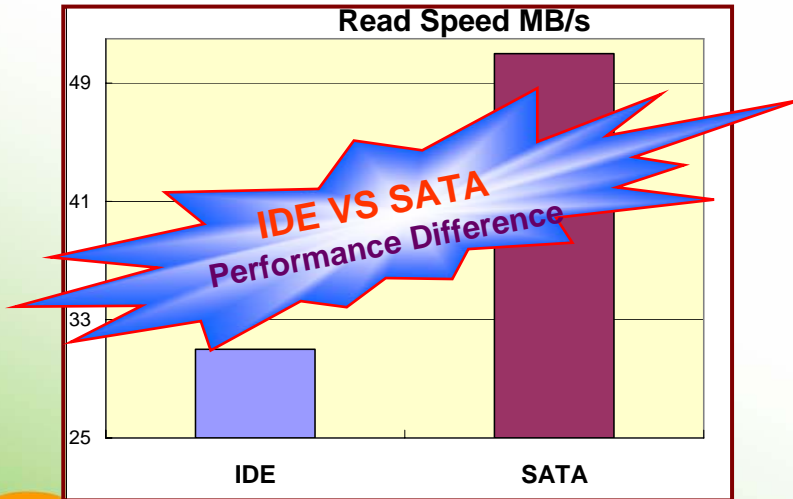
## System Performance Test System Configuration

Memory : PC 133 SO-DIMM 512MB  
 HDD : Western Digital 120GB  
 SATA HDD : Seagate 250GB  
 O.S : Windows XP Embedded

IEI SATA RAID Storage Technology provides RAID capability, enabling faster storage performance with data striping with protecting against data loss from a hard drive failure by mirroring all data across multiple devices.

## Result Comparison

HDD Mode	IDE	SATA	RAID 0	RAID 1	JBOD
Read Speed MB/s	31	51	82.1	50.8	50.3





## Why Thin Client?

Special working environment applications demanded

Size , Temp, User Account, Security, Cost sensitivity

### WAFER LX Advantages

- Small Size **146 x 102 mm**
- Low Power **6W**
- Low Thermal **Fanless solution**
- Wide temp range support **0~60°C**
- Flexibility user number **Thin client architecture**



**Space Sensitivity !**

### Other Advantages

- Reduced Hardware Costs
- Reduced Software Costs
- Reduced Maintenance Costs
- Prevent From Client Crash
- Central Controlled Resources
- Security Protection



**Temperature Sensitivity !**





**Menu order System**

Ordering



**Ordering System**



Cooking



**POS System**

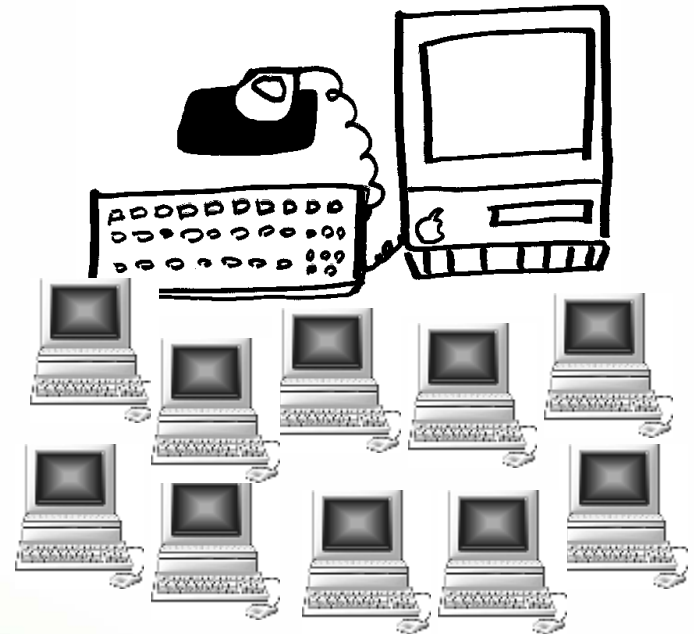


Paying



## I. Hardware Advantages:

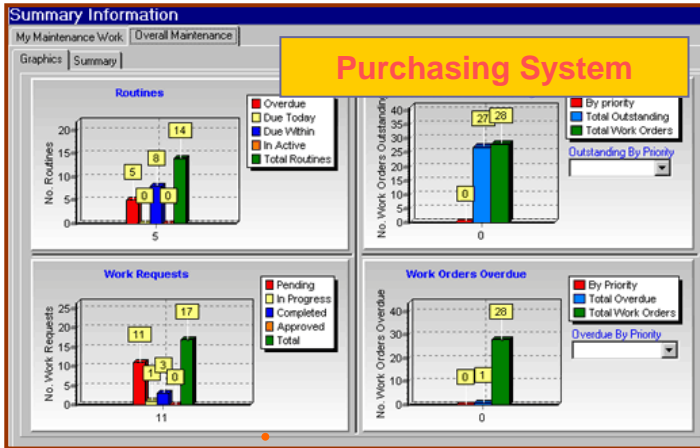
- Simple hardware structure
- Small size for space saving
- 0 to 60°C wide temp range
- Ease of maintenance
- Ease of management by adding or removing client WAFERS from the network



# Thin Client Restaurant thin client application



www.ieiworld.com



Purchasing by inventory stock status



## II. Software Advantages

### II. Software Cost Advantages

- Client-Server embedded software instead of individual OS
- Saves you more with more accounts, more users, and more software

### III. Security Cost saving Advantage

- Centralized data control to prevent data loss
- Simple firewall and virus protection saving your build up cost



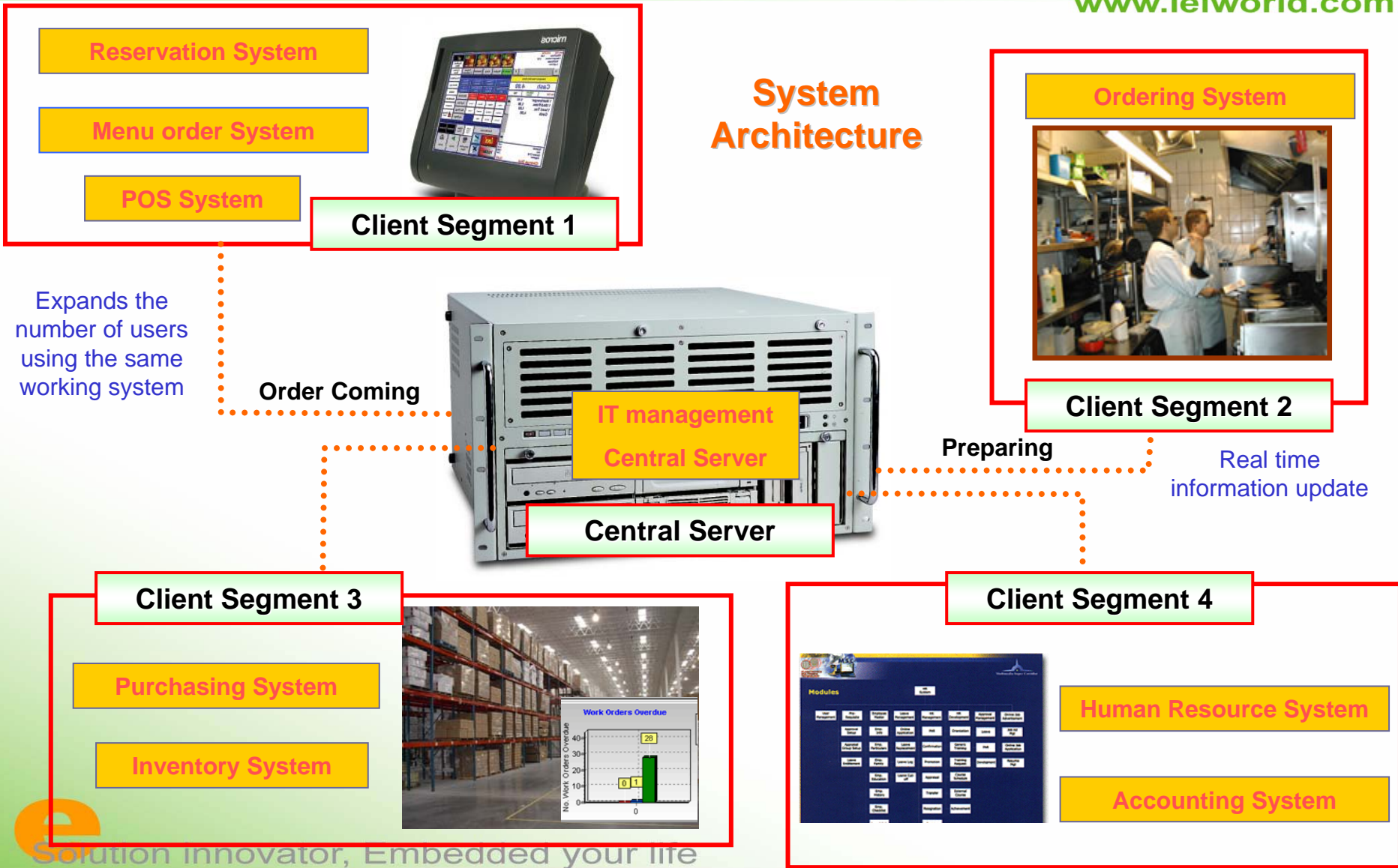
Accounting System link with real time employees attendance and purchasing system



# Thin Client Restaurant thin client application

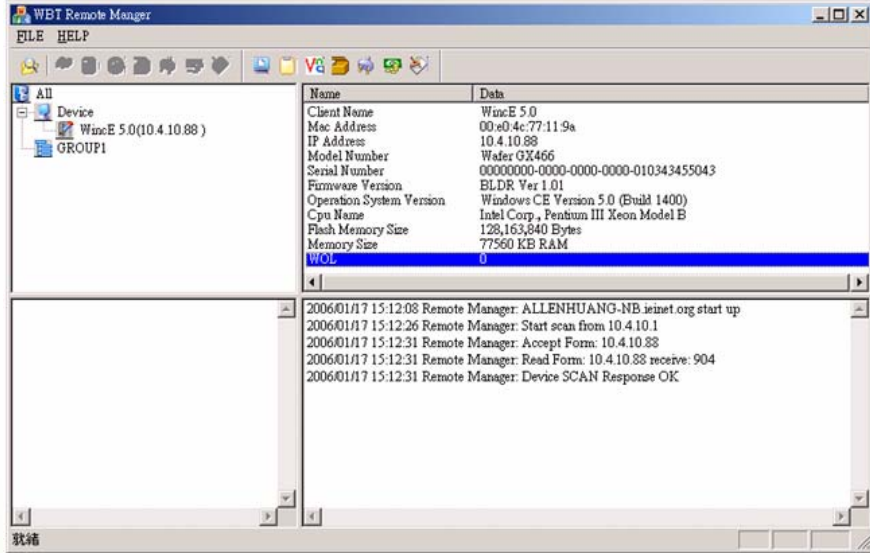


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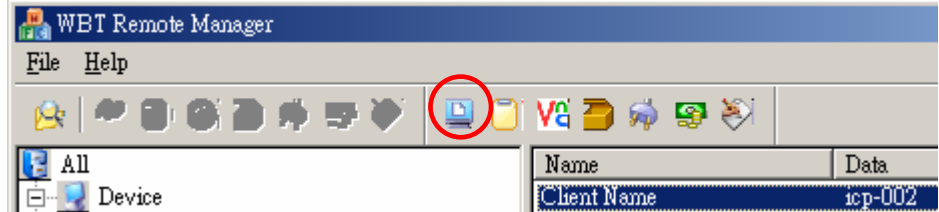
## ICP RMT (Remote Management Tools) Ver. 1.0



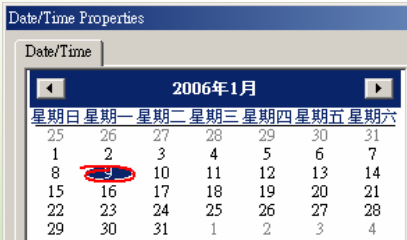
## Terminal Services Function

- Applications run entirely on the Terminal Server.
- The Remote Desktop client performs no local execution of application software.
- The server transmits the graphical user interface to the client.
- The client transmits the user's input back to the server
- SDKs for customers to program their application software in eVC++ or VB .NET

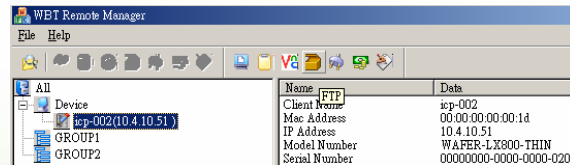
## Wake/Boot on Client Terminal



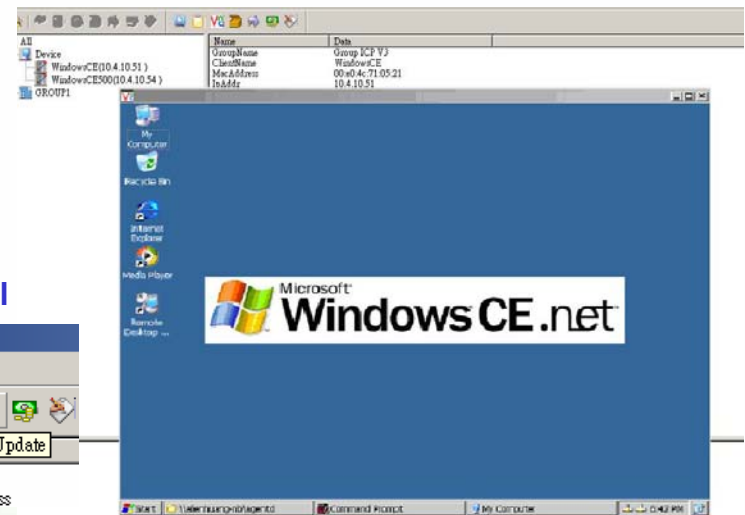
## Set Date & Time



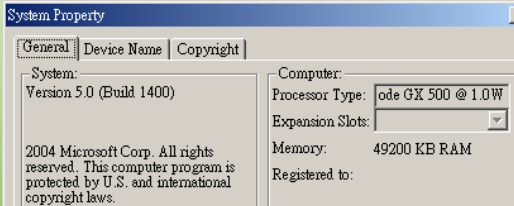
## Configure FTP



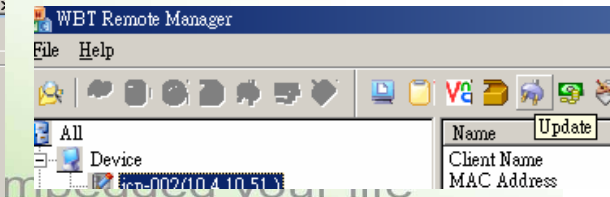
## Remote Client Desktop



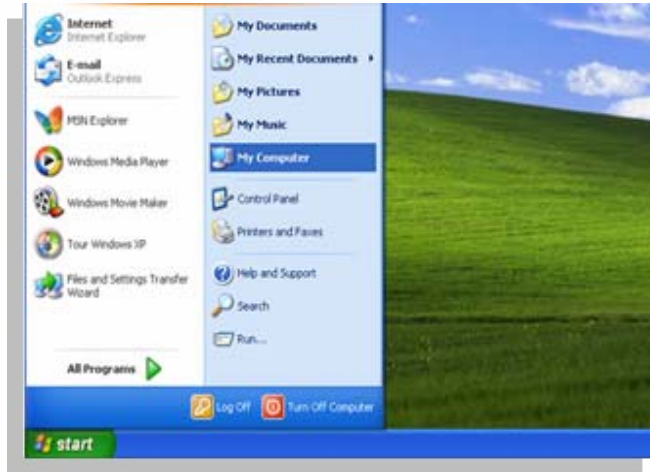
## Check System Property



## Update Windows Base Terminal



# WIN CE / WIN XPE Client Tool Options



### Specialties:

- Extra Client Applications demands
- Multi-language support
- Web service off line support
- Complex system demands

### Benefits:

- Shares server loading
- Quick response action
- Handles heavy system operation

### Specialties:

- Operation relies on Server
- Web-based application system
- Server-based computing system
- No client software installation is required.

### Benefits:

- Simple architecture
- Reduces software cost
- Easy maintenances

### Package include :

#### Windows XP embedded Thin Client:

- Windows XPE thin client OS image
- Thin Client Protocols : MS-IE, RDP, ICA

#### Windows CE 5.0 :

- Ready-for-shipping Windows CE .NET 5.0 thin client OS image
- Thin Client Shell
- Touch drivers and soft-keypad
- Servers and Services : FTP server, VNC server
- Thin Client protocols : MS-IE, RDP, ICA

# AMD Solution Update



## Current Solution

## Entry-Level Solution

## Advanced Solution

Model Name	WAFER-5823	WAFER-GX466	WAFER-LX800
Form Factor	3.5"	3.5" <i>Coming Soon!</i>	3.5"
CPU	AMD GX1-300	AMD GX466	AMD LX800
CPU Speed	300 MHz	333 MHz	500 MHz
NB	AMD GX1-300	AMD GX466	AMD LX800
SB	AMD CS5530	AMD CS5536	AMD CS5536
Display	CRT integrated in AMD GX1-300 18 bit TTL integrated in AMD GX1-300 18 bit LVDS	CRT integrated in AMD GX466 18 bit TTL integrated in AMD GX466 18 bit LVDS	CRT integrated in AMD LX800 18 bit TTL integrated in AMD LX800 18 bit LVDS
Memory	1x PC 100/133 SO-DIMM upto 512MB	1x DDR266 SO-DIMM upto 1GB	1x DDR333/400 SO-DIMM upto 1GB
SSD	CFII	CFII	CFII
LAN	Dual RTL8100B for 10/100Mbps	Dual RTL8100C for 10/100Mbps	Dual RTL8100C for 10/100Mbps
COM	2x RS232	1x RS232, 1x RS232/422/485	1x RS232, 1x RS232/422/485
USB2.0	2x USB 1.1	4x USB 2.0, 2 in rear, 2 by pin header	4x USB 2.0, 2 in rear, 2 by pin header
IDE	1x IDE	1x IDE	1x IDE
FDD	1x FDD	1x FDD	1x FDD
LPT	1x LPT	1x LPT	1x LPT
SATA	NA	2x SATA	2x SATA
KB/MS	PSII Mini DIMM	PSII Mini DIMM	PSII Mini DIMM



IEI Technology Corp.

# Specification



[www.ieiworld.com](http://www.ieiworld.com)

## Specification

### **CPU**

AMD® Geode LX-800 processor

### **Cache Memory**

64K I/ 64k D L1 cache, 128K L2 cache

### **System Chipset**

AMD® CS5536

### **BIOS**

AWARD

### **System Memory**

1 x 200-pin DDR 333/400MHz SO-DIMM  
SDRAM up to 1GB

### **Ethernet**

10/100Base-T dual RTL8100C

### **I/O Interface**

4 x USB 2.0

2 x SATA

1 x LPT/FDD

1 x CFII

1 x RS-232, 1 x RS-232/422/485

1 x PS/2 keyboard/mouse

1 x IDE

### **Super I/O**

W83627HG

### **Audio**

AC'97 Codec Realtek ALC202A

### **Display**

CRT integrated in AMD® Geode LX800

### **TTL/ LVDS**

18-bit single channel LCD integrated in AMD Geode LX800

### **Watchdog Timer**

Software programmable supports 1~255 sec. system reset

### **Power Supply**

+5V± 5%, AT/ATX power support

### **Power Consumption**

+5V@1.2A (AMD LX 800 with DDR400 1GB RAM)

### **Temperature**

operation: 0° to 60°C

### **Humidity**

operation: 5% to 95%,

### **Dimension**

145 x 102mm

### **Weight**

GW:0.67Kg; NW: 0.23Kg



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**WAFER-LX**

## Packing List

1 x WAFER-LX single board computer	1 x SATA power cable ( P/N: 32100-086600-RS)
1 x Mini jumper pack	1 x Audio cable ( P/N: 32000-072100-RS)
1 x IDE flat cable 44p/40p/40p ( P/N: 32200-000009-RS)	1 x Second serial port cable ( P/N: 32200-000061-RS)
1 x Keyboard/ PS2 mouse cable ( P/N: 32000-000138-RS)	1 x Utility CD
2 x SATA cable ( P/N: 32000-062800-RS)	1 x QIG (quick installation guide)

## Ordering Information

Part No.	Description
<b>WAFER-LX-800-R10</b>	3.5" SBC with AMD LX 800 processor, Audio, CRT, LCD/LVDS, Dual LAN and SATA connectors
<b>WAFER-LX-WINXPE</b>	3.5" SBC with AMD LX 800 processor, 256 DDR SO-DIMM Memory , Audio, CRT, LCD/LVDS, Dual LAN , SATA, IFM 512MB and WinXPE image
<b>WAFER-LX-CENET050</b>	3.5" SBC with AMD LX 800 processor, 256 DDR SO-DIMM Memory, Audio, CRT, LCD/LVDS, Dual LAN , SATA, IFM 32MB and WinCE image
<b>WAFER-LX-CLIENT-XPE</b>	3.5" SBC with AMD LX 800 processor, 256 DDR SO-DIMM Memory , Audio, CRT, LCD/LVDS, Dual LAN , SATA, IFM 512MB, WinXPE image and Thin client package.
<b>WAFER-LX-CLIENT-CENET050</b>	3.5" SBC with AMD LX 800 processor, 256 DDR SO-DIMM Memory , Audio, CRT, LCD/LVDS, Dual LAN , SATA, IFM 64MB, WinCE image and Thin client package.
<b>32200-015100-RS</b>	LPT cable



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