

# NANO-LUKE Product Presentation



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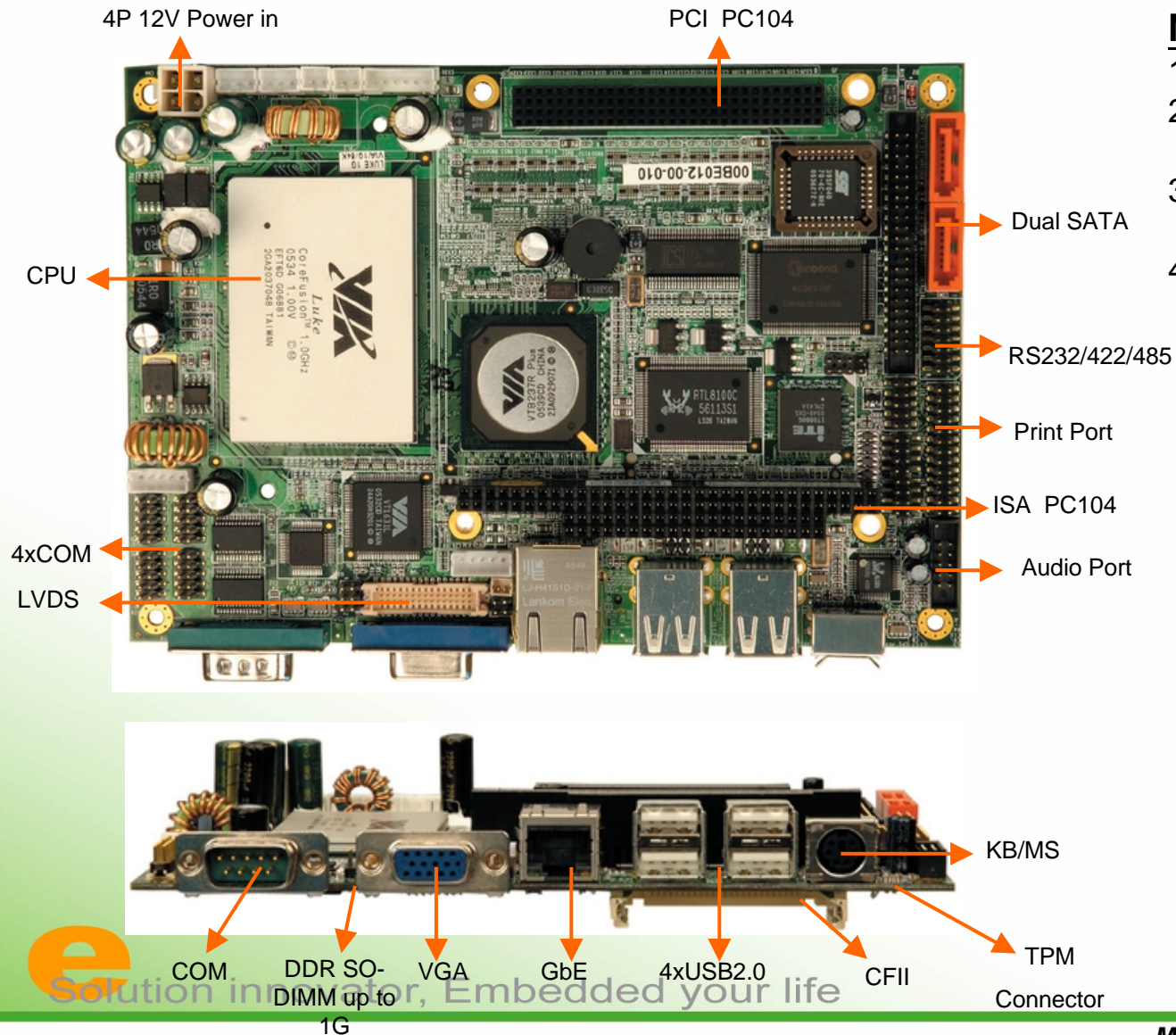


IEI Technology Corp.

# Product Overview



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



## NANO-LUKE Keys:

1. Multi-I/O Support
2. No upgrade impact for **VIA C3/CLE266**
3. **Dual Display** with excellent graphic support
4. **PC/104+** Support



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# Main Feature



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## High Performance, Low Heat

NANO-LUKE integrates VIA Eden-N processor with CN400 North Bridge in a low power package, support DDR 333/400 memory to extend product efficiency

## Maximum Display Flexibility

Built-in high end graphic processor, provide a flexibility display mode and multi-media capability

## Multi I/O Support

NANO-LUKE supports various I/O, ideal for device need numerous peripheral devices platform, such as POS, KIOSK, STB, Media Center, and small controller...etc

## Green Product

RoHS Compliance



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**VIA LUKE processor integrates the VIA Eden-N processor with the VIA CN400 North Bridge in a single, low power, RoHS compliant package.**

### Heavy weapon ideal for Thin x86 architecture

- Combines with VIA VT8235M / VT8237R V-Link South Bridge for integrated 10 / 100 LAN, Audio, ATA133 IDE, LPC, USB 2.0 and SATA
- Supporting DDR400 / 333 / 266 SDRAM
- S3 Graphics Unichrome Pro, separate 128-bit 2D and 3D graphics engines
- 37mm x 53mm HSBGA package (Ball Grid Array with Heat Spreader) with 841 balls





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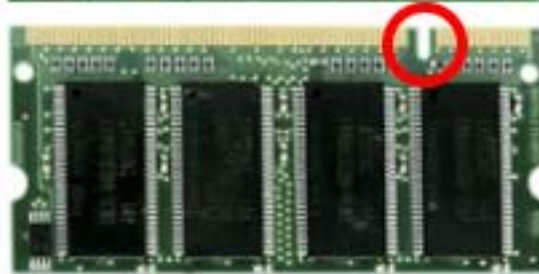
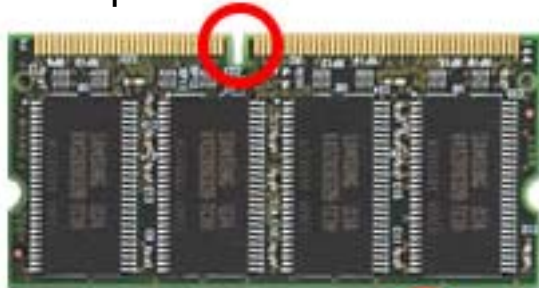
# NANO-LUKE

## DDR-333/400 Support



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144pin PC133 SO-DIMM



200 pin DDR SO-DIMM

The total power dissipation of DDR is at the average **40%** lower than normal SDRAM

PC-133 v.s. DDR			
	Transfer Speed	Data Bandwidth	Voltage
SDRAM	133 MHz	1.1 GB/Sec	3.3V
DDR 200	100 MHz	1.6 GB/Sec	3.3V
DDR 266	133 MHz	2.1 GB/Sec	2.5V
DDR 333	166 MHz	2.7 GB/Sec	2.5V
DDR 400	200 MHz	3.2 GB/Sec	2.5v

Max Up to **300%** increase in memory bandwidth, and double operations per clock cycle

## Power Savings of DDR vs. SDR

Average Power Usage in Watts						
Program	Settings	Time	SDRAM		DDR	
			100MHz	133MHz	200MHz	266MHz
DOS	Idle	5 min.	1.12	1.37	0.60	0.70
RST	Jump	5 min.	2.15	2.69	1.34	1.58
Win98	Idle	5 min.	0.85	0.90	0.39	0.61
Business WinStone 2001	No Defrag	1 test	0.72	0.94	0.46	0.60
Content Creation WinStone 2001	No Defrag	1 test	0.92	0.99	0.51	0.60
Unreal	800x600	5 min.	1.50	1.60	0.83	0.94



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Two operations per clock cycle

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# NANO-LUKE

Higher Performance



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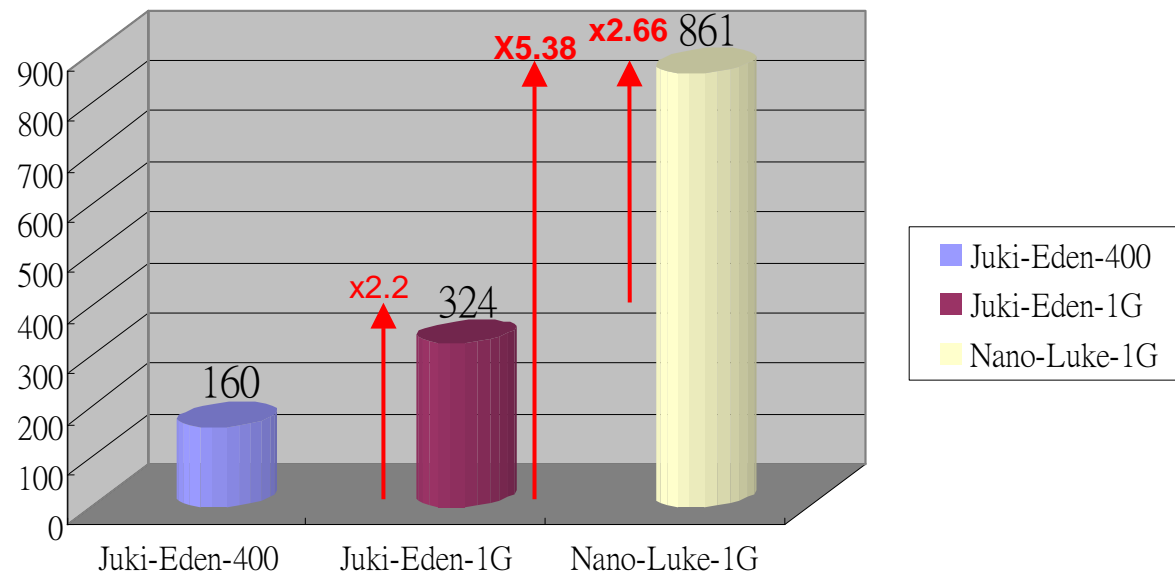
## Performance Comparison

	CPU	Memory	HDD Type
Juki-Eden-400	VIA Eden 400MHz	512MB SDRAMx1	Seagate 40G 3.5" IDE
Juki-Eden-1G	VIA Eden 1GHz	512MB SDRAMx1	Seagate 40G 3.5" IDE
<b>NANO-LUKE-1G</b>	<b>VIA LUKE 1GHz</b>	<b>512MB DDR SODIMMx1</b>	<b>Seagate 80G 3.5" SATA</b>

## Higher Performance, Longer Life Cycle

Depends on high performance **DDR-400**, **1GB/s Ultra V-Link** high transfer rate between LUKE and South Bridge, and **SATA** HDD support, NANO-LUKE-1G is **2.66** times the grade of performance of Juki-Eden-1G.

## Performance Comparison



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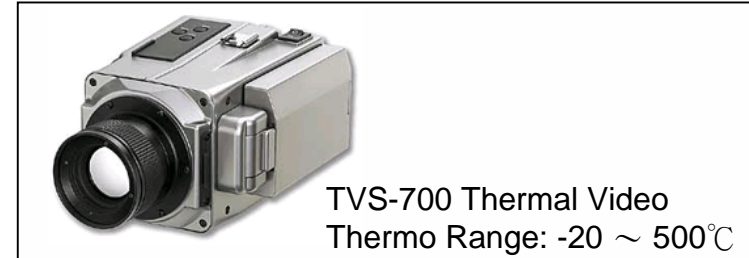
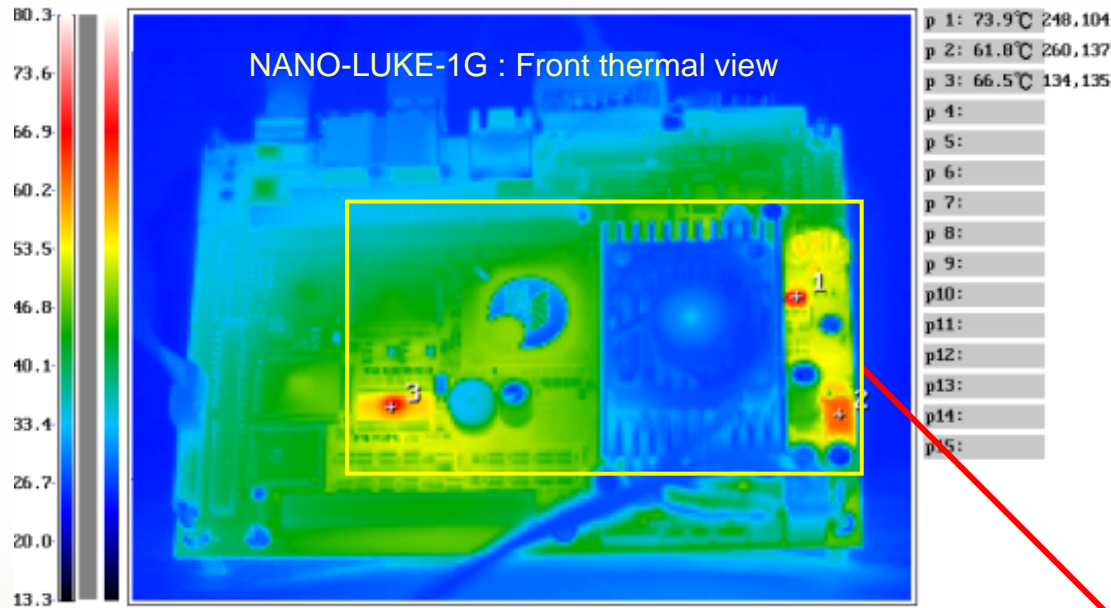
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# NANO-LUKE

**Lower Heat**

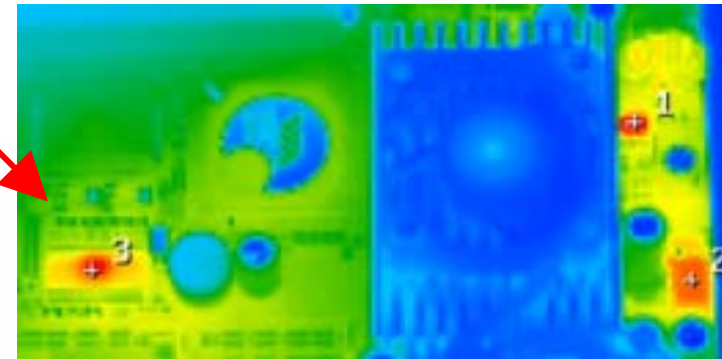


[www.ieiworld.com](http://www.ieiworld.com)



## Lower Heat, More reliable

Depends on a well heat reducing, NANO-LUKE 1G has low, average surface temperature by using a small, low speed fan.



## Testing Configuration

Board Name	NANO-LUKE-1G	Memory	512MB DDR SODIMMx1
Environment Temp.	30 °C	HDD	Seagate 80G 3.5" SATA
OS	Windows XP	Test Software	3DMark 2001@full load



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# NANO-LUKE

**Multi-I/O Support**



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NANO-LUKE Series	
RS232	5
RS232/424/485	1
Internal USB 2.0	2
External USB 2.0	4

Thermal Printer



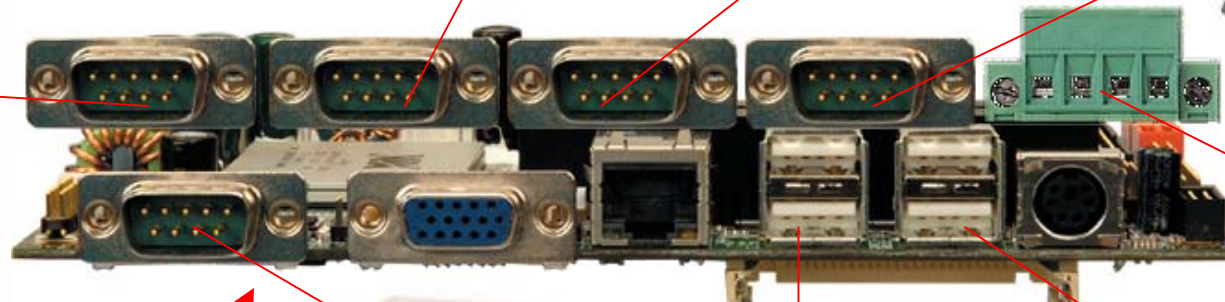
Metrologic  
Scanners



ScanPal 2  
Hand Held  
Data Collector



Digital I/O



VFD/Display Kit

**POS Solution Example**



MMF All Steel  
Cash Drawer



Programmable KB



Mini-Mag  
Magnetic Stripe  
Reader

When systems need more  
I/O ports, NANO-LUKE has  
been ready for you !

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# NANO-LUKE

**Maximum Display Flexibility**



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NANO-LUKE provides a flexible graphic power, includes **LVDS/CRT dual screen**, 2D&3D integrated **MPEG decoder**, **HDTV/Wide screen** displayer support, and multi-media capability, suit for more different market segmentation includes:

## I. Entertainment System



- Set-top-Box (STB)
- Media Center
- Home Theater

## II. Mission critical industrial platform



- Multi-Media / Dual Screen POS
- Interactive KIOSK / Photo Kiosk
- HMI / Panel PC
- Automation & Security system

Integration	VIA Luke
Processor Speed	Up to 1.0GHz
Integrated 2D graphics	Yes
Integrated 3D graphics	Yes
External AGP Port	Yes
Memory Interface	DDR 333/400
Hardware MPEG2 Acceleration	Yes
Hardware MPEG4 Acceleration	Yes
LCD Display Interface	Yes *
TV Display Interface	Yes

## III. Mobile platform



- Car PC
- Mobile/Portable Entertainment Device
- Thin Client

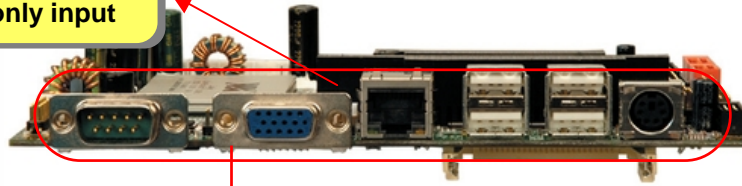


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**Direct LCD Support**  
**By**  
**NANO is 12V DC only input**

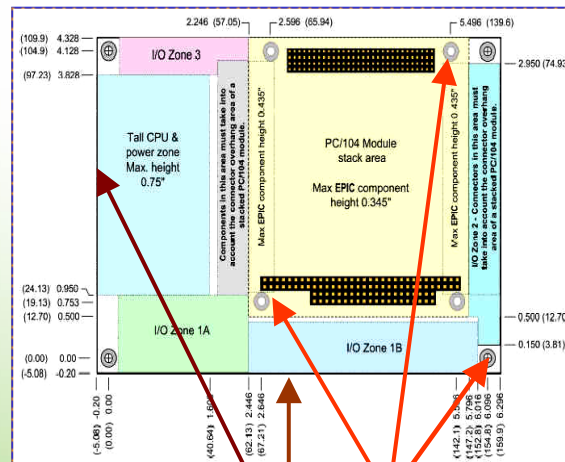


**All NANO product have consistent I/O connection**

## EBC-2100



**NANO is a small, industrial-grade,  
embedded SBC with the option of I/O  
expansion**



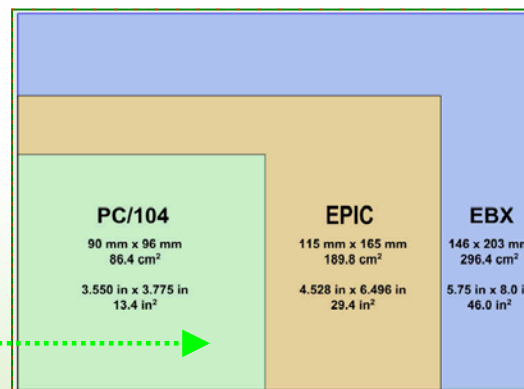
~~FIXED~~ 8 mounting holes

**115 x 165 mm (4.53x 6.5 in)**

## Easy memory upgrading !



**Mid-sized embedded SBC between PC/104 module and and EBX board.**





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# NANO-LUKE

## I/O Comparison Chart



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

**NANO-LUKE provides a various I/O connection capability**

Model Name	NANO-LUKE	NANO-7270	NANO-7241	Kontron EPIC/CE	AXIOMTEK EP820
Form Factor	EPIC	EPIC	EPIC	EPIC	EPIC
CPU	LUKE	Pentium-M / Celeron-M	Celeron ULV 400	Celeron ULV 400/733	Celeron ULV 400/533
NB		852GME	CLE266	815	915GM
SB	VT8237R+	ICH4	VT8237	ICH4	ICH6M
Memory	DDR400	DDR266	DDR266	SDRAM	DDR2-400
SATA	2	2	2		1
USB 2.0	8	6	6	6	4
LAN	1	1	1	2	2
RS-232	5	3	3	3	1
RS-232/422/485	1	1	1	1	1
Audio	AC'97	AC'97	AC'97	AC'97	AC'97
SSD	1xCFII	1xCFII	1xCFII	1xCFII	1xCFII
FDD	1	1	1	1	1
IDE	1	1	1	1	1
LPT	1	N/A	N/A	1	1
Digital I/O	4 in/4 out	4 in/4 out	4 in/4 out		4 in/4 out
Extension	1xPC104+	1xPCI 104	1xPCI 104	1xPC104	1xPC/104

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# NANO-LUKE

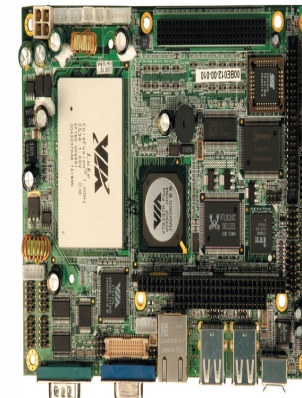
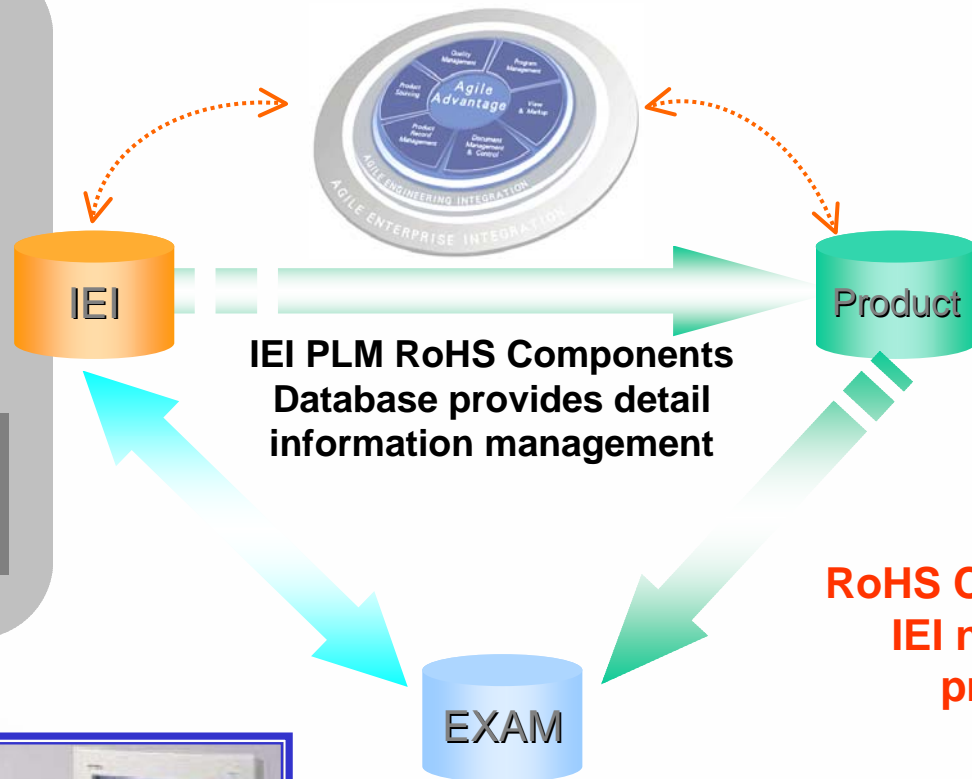
**RoHS Support**



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+



**RoHS Compliance with  
IEI new lead free  
production!**



**Military Level**

**RoHS  
Guarantee!**

**SPECTRO XEPOS**

**Bench top X-Ray Fluorescence Spectrometer**

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



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# Product Specification



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

<b>Model</b>	NANO-LUKE-1GHz/533MHz		<b>LPT</b>	1x LPT
<b>Form Factor</b>	EPIC		<b>SATA</b>	2x SATA
<b>CPU</b>	VIA LUKE 1GHz	VIA LUKE 533MHz	<b>KB/MS</b>	PSII Mini DIMM
<b>NB</b>	LUKE 1GHz	LUKE 533MHz	<b>WDT</b>	Software programmable 1~255 second
<b>SB</b>	VT8237R+		<b>IrDA</b>	SIR / ASKIR
<b>Display</b>	CRT integrated in VIA LUKE 36 bit LVDS integrated in VIA LUKE		<b>Digital I/O</b>	4 input / 4 output by super I/O
<b>Memory</b>	1x DDR SO-DIMM socket support up to 1GB DDR333/400MHz		<b>FAN connector</b>	1x3 pin for CPU Fan
<b>BIOS</b>	AMI BIOS		<b>Extension</b>	1x ISA PC104, 1x PCI PC104
<b>Super I/O</b>	W83697HF		<b>Power</b>	+12V
<b>SSD</b>	CFII		<b>Power consumption</b>	12V@1.62A, VIA LUKE 1GHz DDR333/512MB
<b>Audio</b>	AC'97 2.3 Realtek ALC655		<b>Temperature</b>	~0 to 60
<b>LAN</b>	RTL8110S for GbE		<b>humidity</b>	5%~95% non-condensing
<b>COM</b>	5x RS232, 1x RS232/422/485		<b>Dimension</b>	115mm x 165 mm
<b>USB 2.0</b>	8x USB 2.0, 4 in rear, 4 by pin header		<b>Weight</b>	1.1KG/0.35KG
<b>IDE</b>	1x 44pin IDE			



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## Packing List

1	PS2 KB/MS Y- cable	32000-000138-RS	2	2.0 Pitch Single RS-232 port cable W/BK	32200-000049-RS
2	SATA HDD CABLE	32000-062800-RS	1	2 x 5 Pin Audio cable W/O BK	32000-072100-RS
1	12V ATX Power Cable	32100-087100-RS	1	Mini jumper	
1	SATA POWER CABLE	32100-088600-RS	1	QIG	
1	IDE flat cable 44p/44p	32200-000009-RS	1	Utility CD	

## Ordering Information

Part No.	Description
<b>NANO-LUKE-1G-R10</b>	EPIC SBC VIA LUKE 1GHz Processor, CRT/LVDS, GbE, SATA ,and Audio
<b>NANO-LUKE-533-R10</b>	EPIC SBC VIA LUKE 533Mhz Processor, CRT/LVDS, GbE, SATA ,and Audio

Part No.	Description
<b>32200-026500-RS</b>	2.0 Pitch RS-232 and RS-422/485 ports cable W/O BK
<b>32000-070300-RS</b>	2 x 4 Pin, 2.0 Pitch USB cable W/O BK
<b>32200-015100-RS</b>	LPT Cable W/O BK