

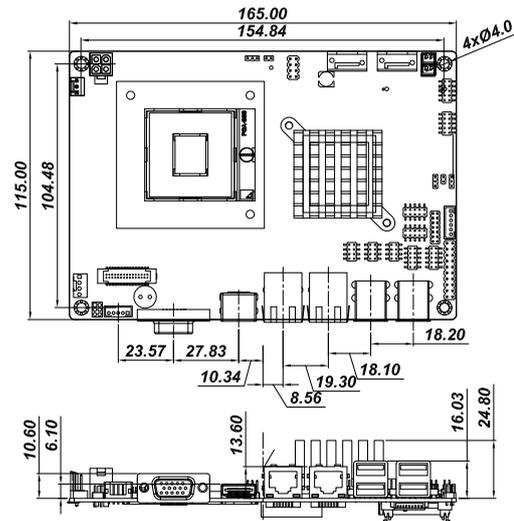
Specifications

- ◆ CPU
Socket G1 for Intel® mobile Core™ i7/ i5/ i3 and Celeron® processor (Socket 988)
- ◆ PCH
Intel® HM55
- ◆ BIOS
UEFI BIOS
- ◆ Memory
One 204-pin 800/1066MHz DDR3 SDRAM SO-DIMM up to 4GB
- ◆ Graphic
Gen 5.75 with 12 Execution Units DirectX* 10, OpenGL* 2.1
- ◆ Display Interface
Analog CRT by VGA connector (2048x1536)
18/24-bit dual-channel LVDS (1600x1200)
HDMI supports up to 1080p resolution (1920x1080)
- ◆ LAN
Dual PCIe LAN controller by Realtek RTL8111E, LAN1 with ASF 2.0 support
- ◆ Super I/O
Fintek F81865
- ◆ I/O Interface
8 x USB2.0 1 x 6-pin pin header for KB/MS
3 x RS-232 1 x RS-232/422/485 (COM3) with Auto Flow control
1 x TTL COM (COM5) 2 x SATA II with SATA power connector
- ◆ Audio
Realtek ALC888 HD Codec
- ◆ Expansion
1 x Mini PCIe card slot (PCIe + USB + SATA signal) support IEI mini DOM
- ◆ Watchdog Timer
Software programmable support 1~255 sec. system reset
- ◆ Digital I/O
8-bit digital I/O, 4-bit input / 4-bit output
- ◆ Fan Connector
1 x 4-pin CPU fan connector
1 x 3-pin system fan connector
- ◆ Power supply
12V only, AT/ATX support
- ◆ Power Consumption
12V@3.8A (Intel® Core™ i3 330M 2.13GHz CPU with DDR3 1066MHz 1GB)
- ◆ Temperature
Operation: -10°C ~ 60°C
- ◆ Humidity
Operation: 5% ~ 95%, non-condensing
- ◆ Dimensions
115mm x 165mm
- ◆ Weight
GW:850g / NW:350g

Features

1. EPIC SBC with Socket G1 for Intel® Core™ i7/ i5/ i3 processor
2. VGA /24-bit dual channel LVDS/ HDMI for dual display support
3. DDR3 800/1066MHz SDRAM supported up to 4GB
4. Support five COM, eight USB 2.0, two SATA, audio
5. IEI One Key Recovery solution allows you to create rapid OS backup and recovery

Dimensions (mm)



Packing List

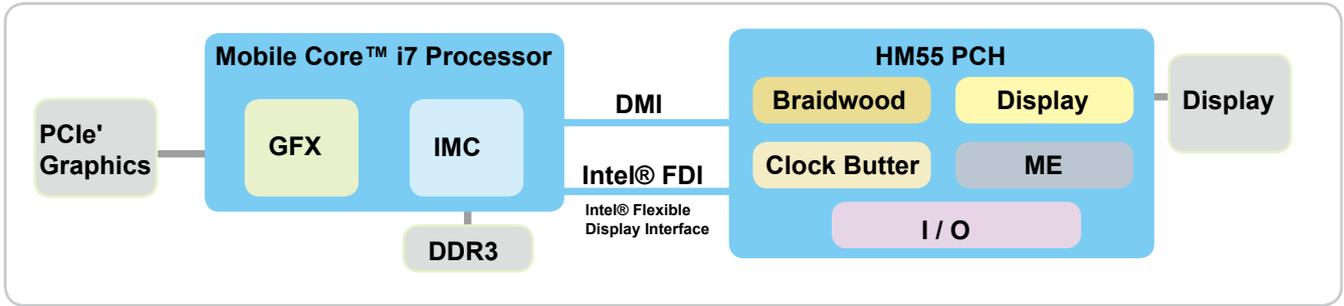
1 x NANO-HM551 single board computer	
1 x Power cable (P/N: 32100-087100-RS)	
2 x RS-232 cable (P/N: 32200-000049-RS)	
1 x SATA with power cable kit (P/N: 32801-000201-100-RS)	
1 x Audio cable (P/N: 32000-072100-RS)	1 x Mini jumper pack
1 x QIG (Quick installation guide)	1 x Utility CD

Ordering Information

Part No.	Description
NANO-HM551-R10	EPIC SBC supports Socket G1 for Intel® Core™ i7 CPU, VGA/HDMI, Dual PCIe GbE, USB 2.0, Mini PCIe, SATA II and Audio, RoHS
32000-070301-RS	Dual port USB cable
32100-043403-RS	ATX power cable
CF-989A-RS-R11	CPU cooler for mobile socket-G (PGA988) up to 55W processor, Copper, 60x60x27.6mm ,RoHS
CF-989B-RS	CPU cooler for mobile socket-G (PGA988) 50W processor, Aluminum, 60x60x27.6mm, RoHS
32200-133200-RS	KB/MS cable
TPM-IN01-R11	20-pin INFINEON TPM Module, S/W management Tool, Firmware V3.17

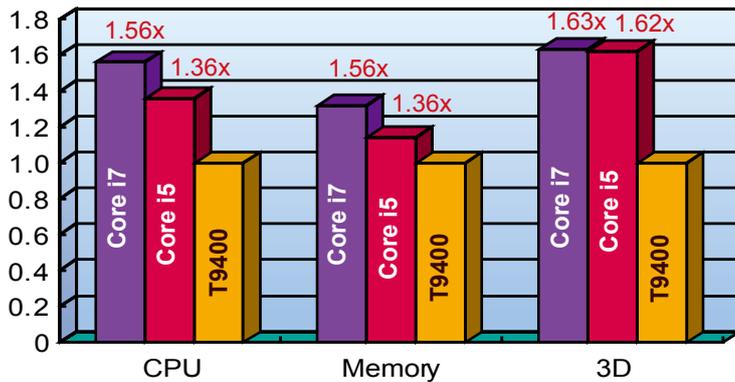
Intel® HM55/QM57 Chipset

Best Graphic Performance Solution for Mobile Core™ i7/ i5/ i3/ Celeron Platform



Package Type	Brand Name	Code Name	CPU No.	Clock Speed	L2 Cache	TDP	iAMT6.0	Integrated Graphic	
Socket G1 988-pin PGA	Core™ i7 Extreme Edition	Arrandale	i7-940XM	2.13G	8M	55W	Yellow means long term support		
			i7-920XM	2.0G	8M	55W			
	Core™ i7		i7-840QM	1.86G	8M	45W			
			i7-820QM	1.73G	8M	45W			
			i7-740QM	1.73G	6M	45W			
			i7-720QM	1.6G	6M	45W			
			i7-620M	2.66G	4M	35W		V (For QM57 only)	V
	Core™ i5		i5-520M	2.4G	3M	35W		V (For QM57 only)	V
			i5-540M	2.53G	3M	35W			V
			i5-450M	2.4G	3M	35W			V
			i5-430M	2.26G	3M	35W			V
	Core™ i3		i3-370M	2.4G	3M	35W			V
			i3-350M	2.26G	3M	35W			V
			i3-330M	2.13G	3M	35W			V
Celeron®		P4500	1.86G	2M	35W		V		

CPU Performance Comparison



Intel® Core™ i7 / i3 1.56 and 1.6 time faster on CPU and graphic performance compared with the T9400 CPU plus GM45 chipset.

Note: Intel® Core™ i7 Quad Core CPU does not support internal graphic, please use add-on graphic card for graphic support.

- i7-620M 2.66G
- i5-520M 2.4G
- T9400 2.53G

Valued Mobile Core™ i7 Choice

Specification differences between QM57 and HM55

Ibex Peak-M Feature	QM57	HM55
PCI-Express	8 ports	6 ports
SATA	6 ports	4 ports
TDP	3.2~3.5W	3.2~3.5W
Intel Active Management Technology (Intel AMT)	6.0 (integrated KVM)	No
USB 2.0 Ports	14 ports	12 ports

HM55 total solution coming soon!!

KINO-HM551

Mini-ITX SBC, 12V, 6COM, HDMI/LVDS/VGA/DVI, Dual GbE, PCIe x16, Dual PCIe Mini



NOVA-HM551

5.25" SBC, 12V, 6COM, Dual HDMI/LVDS/VGA, Dual GbE, PCIe x16, PCI-104, Dual PCIe Mini



NANO-HM551

EPCI SBC, 12V, 5COM, HDMI/LVDS/VGA, Dual GbE



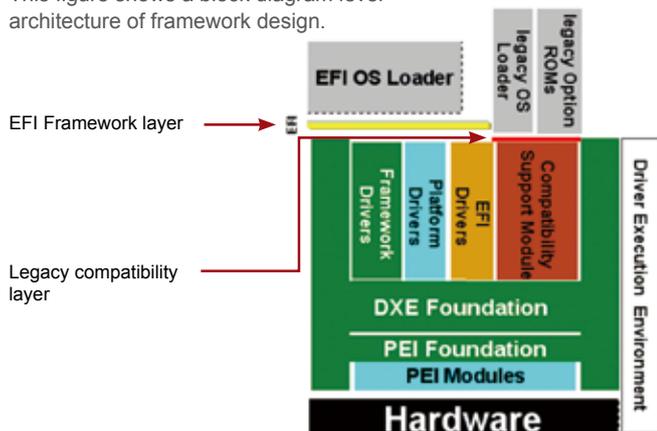
UEFI Introduction



- **UEFI (Unified Extensible Firmware Interface) BIOS** is next-generation BIOS firmware based on UEFI specifications and the Intel® Platform Innovation Framework for EFI.
- UEFI BIOS can be expanded by using a variety of drivers, development tools, support utilities and pre-boot application (PBA) solutions.

UEFI Architecture

This figure shows a block diagram level architecture of framework design.



Legacy BIOS V.S. UEFI

	Legacy BIOS	UEFI
Language	Assembly	C (99%)
Resource	Interrupt Hardcode Memory Access Hardcode I/O Access	Driver \ Protocols
Processor	x86 16-bits	CPU Protected Mode (Flat Mode)
Target	Binary Code	Removable Binary Drivers
Expand	Hook Interrupt	Load Driver
OS Bridge	ACPI (SMI, INT Service)	RunTime Driver Service AED (ACPI EFI Protocol Driver) (ACPI, SMI)
3rd Party ISV & IHV	Bad for Support	Easy for Support and for Multi Platforms

The architecture represents a structured implementation composed primarily of the following:

- Foundation code that binds the pieces together
- Modular elements of code that perform the functional job of enumerating and initializing the platform

UEFI Benefits

Expansibility –

ODM/OEM and customers can add their own PBA easily. PBA can be integrated in BIOS flash or placed in external mass storage devices.

Migration ability –

Drivers, PBA can be migrated easily from one platform to another because they're designed highly modularize on a unified framework.

IEI UEFI BIOS Features

1. Familiarity –

Providing advanced UEFI functionality with a familiar BIOS setup interface.

2. Compatibility –

Designed to extend BIOS compatibility into UEFI solutions. Supporting legacy Option Rom binaries and operating systems requiring a legacy BIOS runtime interface.



IEI Products with UEFI BIOS

1.QM57/HM55 chipset family.

KINO-QM57A, KINO-HM551, NOVA-HM551, NANO-QM57A, NANO-HM551

2.G41 chipset family

IMBA-G410, IMBA-G412ISA, KINO-G410

3. D525/D425/ N455 family

UEFI BIOS has a better compatibility with the dual ranks x16 DRAM memory module for D425/D525/N455 series

3. Functionality –

- (1) Compliant with iSMM H/W monitor utility
- (2) Dynamic LOGO
- (3) Fast boot
- (4) ICP Standard Feature – AT/ATX, WDT, DIO
- (5) BIOS setup with touch device support
- (6) HDD/Storage support over 2.2TB with 64-bit operation system

4. Extensibility –

- Allowing to add and execute pre-boot applications (PBA) in a protected hidden partition
- (1) HDD Security
 - (2) Shell environment
 - (3) Pre-boot messenger (Third Party)
 - (4) Pre-boot Network Browser (Third Party)
 - (5) Pre-boot Antivirus (Third Party)

IEI One Key Recovery Solution

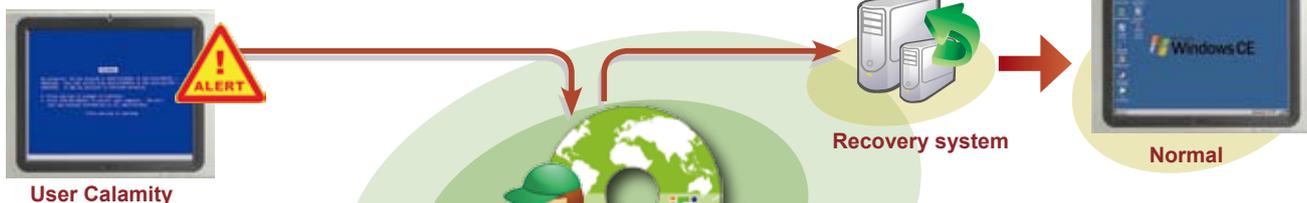
IEI unique one key recovery solution includes exclusive technology to recover and backup your operating system by just one click without any complicated settings. IEI freely bundled recovery CD is shipped with every IEI SBC, embedded system and all-in-one panel PC products.



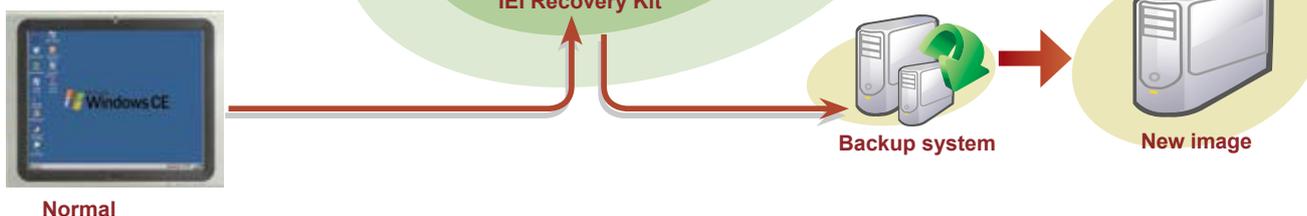
Recovery Tool for IEI Products Only

The IEI recovery CD includes a system recovery software developed by IEI with the Windows PE 2.0. The recovery CD helps to create full system backup and restore from system failures. Users don't need to spend additional cost for other system backup and recovery tools.

System Recovery

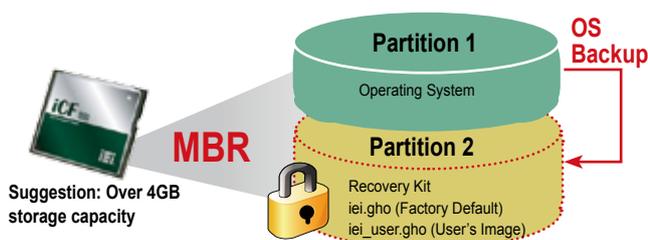


System Backup



Recovery Partition

Hidden partition is a logical section of a disk which is not accessible to the operating system. You can use a partition tool such as SPFDISK to create a hidden partition first. It may be used to protect confidential data or store backup of the system.



IEI Recovery Solution Advantages:

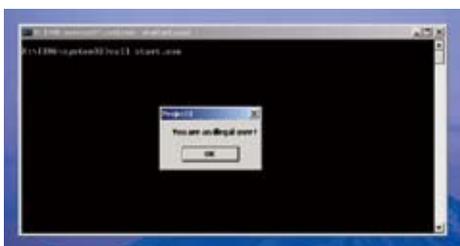
- No need to make recovery discs by yourself nor follow the trivial imaging procedures
- Simple steps to backup or restore the system. No IT personnel are required.
- Backup/Restore system easily through unique multi-menu
- One key to make recovery disc
- One key to restore system

IEI Products Only



IEI Certified Sticker

The IEI recovery CD is only for IEI products. A message will show to warn "you are an illegal user" if using the CD for non-IEI products. This protection is detected through the BIOS of the IEI boards.



Support OS List

Windows® XP	Windows® Vista
Windows® 7	Windows® CE 5.0
Windows® CE 6.0	Windows® XP Embedded
Linux OS	
1.Red Hat RHEL- 5.4	
2.Fedora Core 7, 8, 10, 11, 12	
3.Ubuntu 6.10, 7.10, 8.10	
4.Debien 4.0, 5.0	
5. SuSe 11.2	

Rapid Imaging/ Migration through One Touch Hot Key



Neither specialized IT staff nor consultants are required in order to implement the system imaging and data migration. Just press the F3 key to get access to the recovery menu. The one key operation simplifies the imaging or migration process to help IT staff up and running quickly.

EASY WAY



One-Key Recovery

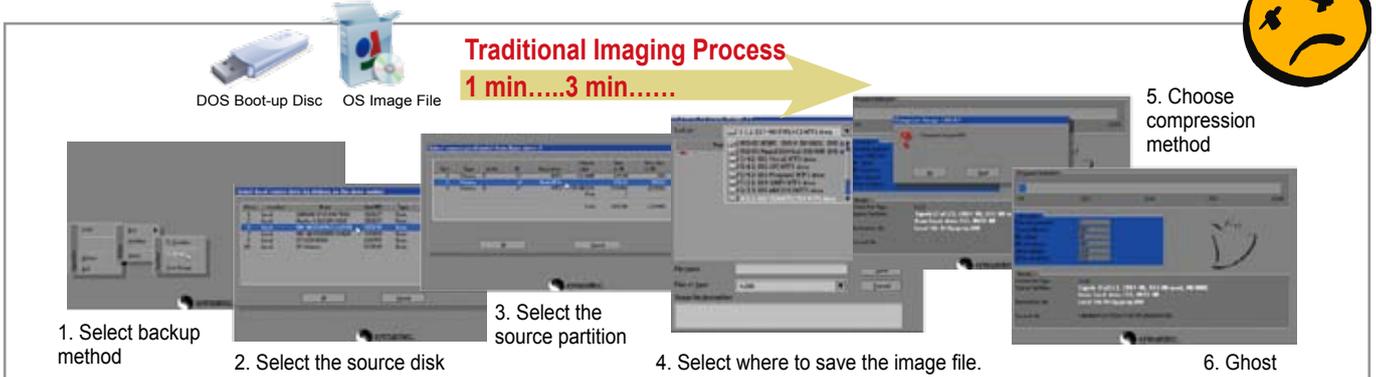
- Factory restore: restore your system to default setting (iei.gho)
- Restore your last backup: recover the last system configuration (iei_user.gho)



```
1. Factory Restore
2. Backup system
3. Restore your last backup.
4. Manual
5. Quit
Please type the number to select and then press Enter: _
```

One-Key Backup

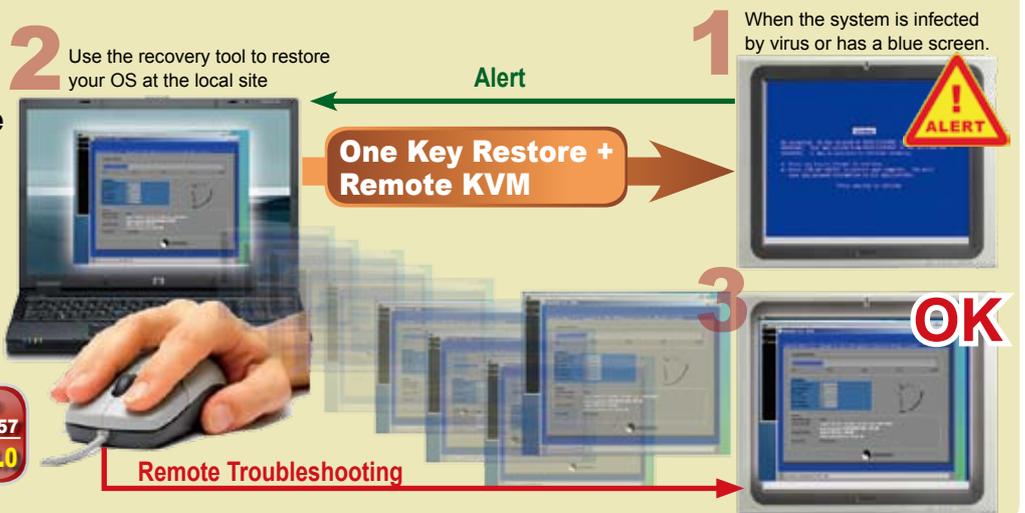
Backup your operating system to the secure hidden partition. You can create your own ghost image as "iei_user.gho" including your application programs set-ups.



Benefits

Remote Maintenance Reduces the Cost of IT Infrastructure

All migration tasks can be performed remotely from a central management console. It will save a lot of cost from reducing physical visits.



Remote Troubleshooting

IEI Intelligent System Management Module

What is the IEI Intelligent System Management Module (iSMM) ?

iSMM

IEI iSMM is a system health supervision API which utilizes sensor chips on IEI motherboards to track system and CPU temperatures, voltages, cooling fan speed., WDT and Digital I/O set up status. By quickly capturing and reporting system health data, users can prevent disasters such as system instability or damage.

Features

- External and on-chip voltages data feedback
- CPU and system temperature data feedback
- Cooling fan speed data feedback
- Cooling fan speed controlled by PWM/ On-Off/ Automatic Mode
- Warning signals by beeper and sound effect
- WDT Test
- Programmable Digital I/O
- System health configurations save and load

Available Models

iSMM support below super I/O:

- Winbond W83627
- ITE IT8712
- ITE IT8718
- Fintek F81216D
- Fintek F81865

Available Operation System

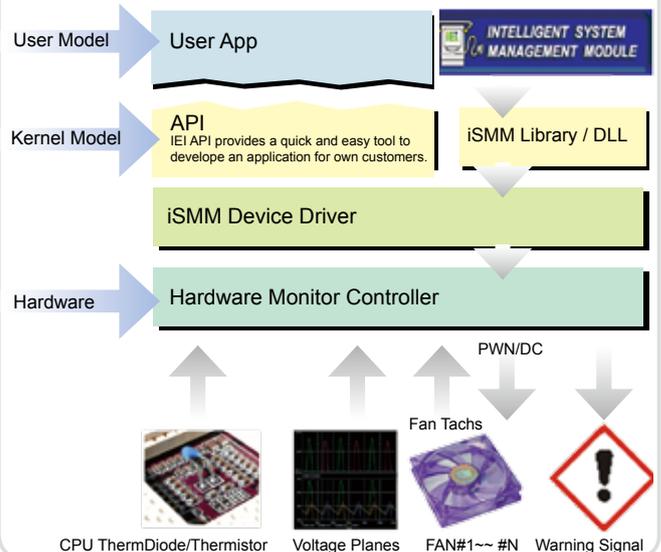
- Windows XP
- Windows Vista
- Windows 7

Note: Please disable UAC function before install iSMM software under Windows Vista and Windows 7.

Advantages

**Know that your system is running within safe limits !!
Prevent disasters such as system instability or damage.**

Architecture



IEI Exclusive Diagnosis Software

Full Graphic Interface,
Real-time, 6 in 1 Modules !!



IEI Solutions
Compliance Only

Functions

