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Embedded

Intel® Pentium® Processor G6950 for Embedded Computing

Product Overview

Based on 32nm process technology and Intel® Core™ microarchitecture, the Intel® Pentium® processor G6950Δ features dual-core processing with integrated graphics and Error Correcting Code (ECC) capabilities. It also includes Intel® Virtualization Technology[1] to ease software migration, improve real-time performance and enhance security for embedded systems. When paired with the Intel® Q57 chipset or Intel® 3450 chipset, these platforms provide ideal solutions for embedded market segments such as retail, digital signage, digital surveillance, gaming, medical, communications, printing imaging, and industrial automation and control.

The graphics engine is integrated into the processor, providing a two-chip solution with enhanced graphics performance in a smaller footprint, compared to previous Intel® platforms. The memory controller hub has also been integrated into the processor for faster performance. While incorporating advanced technology, these processors remain software-compatible with previous IA-32 processors.
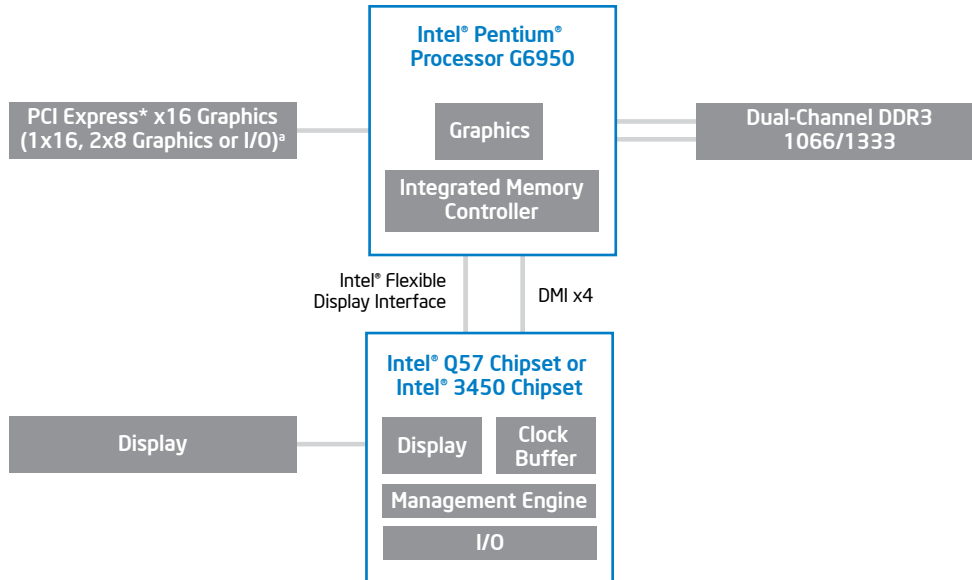
Product Highlights

Integrated graphics engine: Supports enhanced graphics performance and capabilities while reducing overall platform power requirements and footprint.

ECC memory: Corrects memory errors without requiring system reset – enhancing performance, uptime and autonomous operation – essential for remote, embedded applications (when paired with Intel 3450 chipset).

Intel® Intelligent Power Technology[2]: Reduces power consumption through architectural improvements such as integrated power gates and automated low power states.

Intel® Virtualization Technology: By providing hardware-based assistance for virtualization software, this technology enables creation of multiple virtual machines that run on a single system.

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                    │  Intel® Pentium®        │
                    │  Processor G6950        │
                    │                         │
┌──────────────────┐│   ┌─────────────────┐   │   ┌──────────────────┐
│ PCI Express* x16 ││   │    Graphics     │   │   │ Dual-Channel DDR3│
│ Graphics         ││───│                 │   │───│ 1066/1333        │
│ (1x16, 2x8       ││   ├─────────────────┤   │   │                  │
│ Graphics or I/O)ª││   │ Integrated      │   │   └──────────────────┘
└──────────────────┘│   │ Memory          │   │
                    │   │ Controller      │   │
                    │   └─────────────────┘   │
                    └─────────────────────────┘
          Intel® Flexible        DMI x4
          Display Interface
                    ┌─────────────────────────┐
                    │  Intel® Q57 Chipset or  │
                    │  Intel® 3450 Chipset    │
┌──────────────────┐│   ┌──────────┐┌───────┐ │
│    Display       ││───│ Display  ││ Clock │ │
│                  ││   │          ││Buffer │ │
└──────────────────┘│   └──────────┘└───────┘ │
                    │   ┌───────────────────┐ │
                    │   │ Management Engine │ │
                    │   ├───────────────────┤ │
                    │   │        I/O        │ │
                    │   └───────────────────┘ │
                    └─────────────────────────┘
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ª2x8 PCIe graphics option available when paired with Intel® 3450 chipset.

Software Overview

The following independent operating system and BIOS vendors provide support for these platforms.

OPERATING SYSTEM	CONTACT	BIOS
Vista* SP2	Intel provides drivers[3]	American Megatrends
Windows Server* 2003/2008	Intel provides drivers[3]	Insyde Software
Windows* 7	Intel provides drivers[3]	Phoenix Technologies
Microsoft Windows* XP SP3	Intel provides drivers[3]	
Microsoft Windows Embedded Standard (XPe)	Intel provides drivers[3]	
Microsoft Windows Embedded POSReady (WEPOS)	Intel provides drivers[3]	
Red Hat Enterprise Linux* 5.1	Red Hat	
Fedora Core* 7	Red Hat	
SUSE Enterprise Linux* 10 SP 1	Novell	
Wind River Linux* 3.0	Wind River	
Wind River VxWorks* 6.8	Wind River	

Features and Benefits

FEATURES	BENEFITS
Supports key embedded platform requirements	Ideal for compute-intensive embedded applications.
Extended life cycle product support	Protects system investment by enabling extended product availability for embedded customers.
Embedded ecosystem support	Along with a strong ecosystem of hardware and software vendors, including members of the Intel® Embedded Alliance (intel.com/go/eca), Intel helps to cost-effectively meet development challenges and speed time-to-market.
Intelligent performance	Delivers optimum efficiency by adapting performance to embedded application needs.
Intel® Advanced Smart Cache	Large on-die shared Last Level Cache reduces latency to data, improving performance and power efficiency.
Error Correcting Code memory (with Intel® 3450 chipset)	Detects multiple-bit memory errors; locates and corrects single-bit errors to keep the system up and running.
Intel® Intelligent Power Technology[2]	Automated energy efficiency reduces power consumption.
Integrated power gates	Reduces idle processor cores to near zero power when not in use to help conserve power and lower operating costs.
Automated low power states	Adjusts system power consumption based on real-time processor loads.
Flexible virtualization	Eases software migration, improves real-time performance and enhances security.
Intel® Virtualization Technology[1]	Speeds up the transfer of platform control and the movement of data between the virtual machine monitor (VMM) and other platform agents (including guest OSs and I/O devices). By lowering the workload on the VMM, this technology addresses many embedded system design challenges, like migrating legacy software, increasing real-time performance, and making applications more secure.

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PROCESSOR NUMBER[A]	CORES	BASE FREQUENCY	LAST LEVEL CACHE	THERMAL DESIGN POWER	PACKAGE	ERROR CORRECTING CODE[a]	INTEL® VIRTUALIZATION TECHNOLOGY
Intel® Pentium® Processor G6950	2	2.80 GHz	3 MB	73 W	LGA1156	▪	▪

[a]When paired with Intel® 3450 chipset only.

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