A New Brain for Notebook PCs Intel® Centrino® Pro Processor Technology

The Intel® Centrino® Pro processor technology incorporates the same innovative functions as the Intel® vPro™ processor technology, delivering superior performance and energy efficiency along with enhanced manageability and security to notebook PCs.

Dramatic Improvement in Performance

Notebook PCs with Intel® Centrino® Pro processor technology use the 64-bit Intel® Core™ 2 Duo processor and chipset which offer even better performance and energy efficiency. Functions have been further enhanced to improve the ease-of-use of notebook PCs over a wide range of different areas, including improved video performance and a disk cache that uses Intel® Turbo Memory.

▪ 800MHz Front-Side Bus

Replacing the previous 667MHz front-side bus (FSB) with the new-generation 800MHz FSB has increased data transfer speed. Notebook PCs can be used even for load-intensive applications.

Floating-point processing benchmark	27% improvement
Integer benchmark	24% improvement
3D processing benchmark (3D Mark)	x 2.33

Note: Comparison with Inte® Core™ 2 Duo processor using a 667MHz FSB.[1]

▪ Intel® Clear Video Technology

Intel® Clear Video Technology uses real-time image enhancement functions to improve the quality of video playback and also supports output of high-quality video from a DMI interface.

Remote Client Management Available via Wireless

Intel® Centrino® Pro processor technology now makes Intel® Active Management Technology (Intel® AMT)[2] available on notebook PCs. This technology is already provided for desktop PCs aimed at enterprise segments as part of Intel® vPro™ processor technology. Accordingly, companies can now unify management of desktop and notebook PCs to strengthen anti-virus and other security measures, reduce support costs, and make asset management more efficient, which are all prioritized issues for IT departments.

Companies can cut administration costs by reducing the number of frequencies their support engineers are called out on-site. Employees can improve work efficiency by having less notebook PC downtime.

▪ **Intel® Active Management Technology**

Intel® Active Management Technology offers the remote monitoring and control of PCs. Intel® Centrino® Pro processor technology supports remote administration of notebook PCs connected to a wireless LAN using Intel® AMT 2.5 (which features improved wireless support) together with administration software designed for use with AMT. IT administrators can perform asset management remotely even if a notebook PC is turned off or is unable to boot due to damage to the operating system. By combining security software with third-party administration software that supports Intel® Active Management Technology, administrators can perform remote operations such as turning the PCs on or off, installing the operating system, applying anti-virus updates, or dealing with failures.

Hardware-based network filter functions are also included that continuously monitor the network for threats and can proactively prevent threats and disconnect clients that have been contaminated by a virus. IT administrator can also be notified if the agent is deleted.

Energy Efficiency Enhances Mobility

The chipset, wireless LAN module, and LAN module have all been updated. The Mobile Intel® 965 Express Chipset Family chipset, the Intel® Wireless WiFi Link 4965AGN wireless LAN module, and the Intel® 82566MM LAN module are all based on comprehensive energy-saving designs.

▪ **Intel® Extending Battery Life**

This extends the battery life by efficiently managing the LCD display on the notebook PC.

▪ **Super Low-Frequency Mode Added**

The frequency of the processor core clock and bus can be arbitrarily reduced to minimize power consumption. The Dynamic FSB Frequency Switching function can dynamically change the bus clock frequency and can be used to reduce the power consumption and voltage by changing to low-frequency mode.

High-Speed Wireless LAN Incorporated

Support for the IEEE 802.11n draft, seen as the standard for the next generation of wireless LANs, provides a wide-area connection and high-speed wireless access with communication speeds up to 300Mbps, five times faster than that of the existing IEEE 802.11a/g standard.

▪ **Intel® Next-Gen Wireless-N**

The Intel® Next-Gen Wireless-N wireless LAN module which supports IEEE 802.11n provides a wide-area connection and a maximum communication speed of 300Mbps. This dramatically improves the performance and availabilities of mobile networking.[3]

Taking Full Advantage of New Operating Systems

The Intel® Core™ microarchitecture is optimized for multitasking and multithreading. Together with 64-bit support, this delivers maximum performance from Microsoft Windows Vista*. This brings out the full potential of the computing environment made possible by the next-generation Windows* system to deliver a further step up in notebook PC processing performance.

▪ **Supports 8GB of Memory**

The Mobile Intel® 965 Express Chipset Family supports a main memory size up to 8GB.

▪ **Supports the Next Generation of Wireless LAN Standards**

Combining Windows Vista's* support of the draft IEEE 802.11n standard for the next generation of wireless LANs with Intel® Centrino® Pro processor technology allows you to configure an easy-to-use high-speed wireless LAN.

▪ **Intel® Turbo Memory**

Windows Vista* includes the Windows* ReadyBoost and Windows* ReadyDrive functions which allow external flash memory drives to be used as system memory. Intel® Turbo Memory is a technology for taking maximum advantage of these functions. The technology can nearly double the startup and running speed of a hard disk.[4]

Intel® Centrino® Pro Processor Technology	Overview
Intel® Core™ 2 Duo Processor 800MHz FSB	· Up to 800MHz FSB and 4MB L2 Cache for additional Performance headroom · Intel® Extended Memory 64 Technology for Intel® SIPP supported 64 bit · Intel® Virtualization Technology · Intel® FSB Frequency Switching
Mobile Intel® 965 Express Chipset Family	· Manageability Engine/controller-link enable wired and wireless Intel® AMT · Intel® GMA X3100 graphics · Outstanding video quality with Intel® Clear Video Technology · 36-Bit FSB enables full 4GB memory addressability and capability to scale up to 8GB memory (pending SODIMM module validation) · 10 USB 2.0 port, 6 PCI Express* ×1poruts, 3 SATA 3Gbps ports for increased I/O
Intel® Wireless Wifi Link 4965AG/AGN	· 802.11n/MIMO at 300Mbps · Wireless support for Intel® AMT2.5 · Cisco Compatibility Extensions v4 · Business Class Wireless Suite v2
Intel® 82566MM/C	· 10/100/1000 GbE connectivity · Intel® AMT 2.5 support
Intel® Turbo Memory (Option)	· Platform Non Volatile Memory solution for faster boot times, higher platform performance, lower power, and faster application performance
Digital Office	· Intel® Active Management Technology 2.5 for enhanced wired and wireless manageability · Intel® Media Share SW to enable the laptop as a great media client

Putting into Practice New IT Infrastructure Policies Made Possible by Intel® Centrino® Pro Processor Technology

FUJIFILM

General Manager, Infrastructure Information Technology, Information Systems Div.
FUJIFILM Computer System Co., Ltd.
Tatsuya Yukawa

Asset Management for Approximately 20,000 Client PCs is a Major Issue

With responsibility for everything from operation and maintenance through to establishing strategy and policy for IT infrastructure in FUJIFILM group, FUJIFILM Computer System requires significant resources to operate and manage the approximately 20,000 client PCs used by group companies at sites around Japan. The company hopes that supplementing its existing software-based client management tools with Intel® AMT's support for operation and management at the hardware level will make possible comprehensive risk management, including dealing with issues such as security and compliance.

About 5 to 10% of the group's 20,000 or so PCs are not adequately accounted for, including PCs that are rarely turned on or that are still on the books but have in fact already been disposed of. These PCs represent a potential source of problems for security and compliance. Bringing these PCs and other client resources under a comprehensive centralized management regime is a major issue.

The company is looking to Intel® vPro™ processor technology as one solution to this problem and purchased approximately 500 new desktop PCs equipped with this technology between 2006 and April 2007.

Intel® Centrino® Pro Processor Technology has a Major Role to Play

A feature of Intel® vPro™ processor technology that is particularly welcome is the ability to perform comprehensive asset management of "dormant PCs", something that is not possible with existing asset management tools. Another is the capability for the administrator to minimize the damage if a PC is detected as being infected with a virus through measures such as forcibly disconnecting the PC from the network. Also, the network filter function can be used to implement a sophisticated quarantine system including countermeasures by connecting to a quarantined network.

FUJIFILM group is in the process of introducing wireless LANs as part of a move towards a new way of working, a business-driven consideration. The arrival of Intel® Centrino® Pro processor technology for use in notebook PCs brings with it expectations of very great significance for the group. Notebook PCs currently make up 40% of the group's 20,000 PCs and this proportion will continue to grow steadily. The group-standard PC specifications for 2007 are currently under consideration, but inclusion of a wireless LAN function is planned. The group plans actively to adopt the new technology provided that notebook PCs with Intel® Centrino® Pro processor technology are available from vendors at prices equivalent to past models.

The hope is that, if desktop and notebook PCs with Intel® AMT can reduce the workload and costs associated with maintaining and administering client PCs, this will allow resources to be diverted towards new IT infrastructure related policies and projects.

Intel® Centrino® Pro with Intel® AMT Opens up New Business Opportunities

DCS

General Manager, Open Systems Technology Division and Quality Management Division
Mitsubishi Research Institute DCS Co., Ltd.
Yoshihiko Ishii

Ever Greater Demands Placed on Client Management

With the enactment of laws for the protection of personal information and the Japanese equivalent of the Sarbanes-Oxley Act, awareness of compliance issues amongst customers has become much keener and has lead to even more severe demands that must be satisfied by system operation. This also extends to considerations of client management. The demands placed on client management by the financial services companies who are important customers of the Mitsubishi Research Institute DCS are becoming even greater than they were already.

Having said this background, the announcement of Intel® vPro™ processor technology was a major factor in the company extending its collaboration with Intel to cover client platforms. The Bank of Tokyo-Mitsubishi UFJ also declared its high expectations at the technology launch event held last year. Intel® Centrino® Pro processor technology now brings this same technology to notebook PCs, and not only has conducting this proof of concepts reconfirmed the significant benefits the technology provides to customers, we also anticipate that it will open up new business opportunities for us. We are currently in the process of collating the results of the trial into a form that we can present as a proposal to customers.

A Trigger for MSP Business Expansion

In the past, when a client failure occured at a remote customer site, it has often been difficult to determine what has happened and what it was that the end user did, even if the site is contacted by phone. In some cases it ends up being necessary to spend half a day for travel to visit the site in person. In one case, a virus outbreak occurred at the overseas office of a particular manufacturing company and, although we could identify the virus and explain the procedure for dealing with it, communicating this took a considerable amount of time and in the end it took 3 days to prevent the virus from spreading. If Intel® AMT, which is included as part of Intel® Centrino® Pro processor technology, is used to deal with these sorts of problems, remote operation can be used to determine the status of the client and perform recovery, and damage caused by viruses can be handled remotely at the hardware level. For a company like Mitsubishi Research Institute DCS whose business includes system administration outsourcing, these sorts of functions open up new opportunities for developing its management service provider (MSP) business because they allow activities such as preventative maintenance, remote recovery, client asset management, and application of security patches outside working hours to be administered remotely from a central location.

The Japanese market, which has been a leader in the introduction of notebook PCs into the business scene, has been experiencing rapid growth in the number of companies adopting innovative new approaches to work that take advantage of notebook PCs such as the adoption of flexible workspaces. The ability to remotely administer notebook PCs in a wireless LAN environment is a technology that can bring significant benefits, not just to large enterprises, but also to small and medium sized users who operate small offices or remote branches.

Visit the following site for more information about PCs fitted with Intel® Centrino® Pro processor technology.

http://www.intel.co.jp/jp/go/centrinopro/

Visit the following site for more information about PCs fitted with Intel® vPro™ processor technology.

http://www.intel.co.jp/jp/vpro/

1 Performance measured by 3DMark* 06. The results are a comparison of a notebook PC using the latest-generation Intel® Centrino® Pro processor technology with built-in graphics support and a notebook PC using the previous-generation Intel® Centrino® Pro processor technology. The actual results will differ depending on the hardware and software configuration.
See http://www.intel.co.jp/performance/mobile/benchmarks.htm for more information.

2 Intel® Active Management Technology requires the platform to have an Intel® AMT-enabled chipset, network hardware and software, as well as connection with a power source and a corporate network connection. With regards to notebooks, Intel AMT may not be available or certain capabilities may be limited over a host OS-based VPN or when connecting wirelessly, on battery power, sleeping, hibernating or powered off. For more information, see http://www.intel.com/technology/manage/iamt.

3 Requires a connection from Intel® Next-Gen Wireless N technology and Intel® Centrino® Pro processor technology to a specific wireless N access point. Wireless N access points that do not connect to Intel® Centrino® Pro processor technology may require additional firmware to improve performance results. Contact the PC manufacturer, access point operator, or similar for more information.

4 This test compared a customer reference board using a prototype of the latest-generation Intel® Centrino® Pro processor technology which incorporates Intel® Turbo Memory as an optional feature with an existing system that does not use Intel® Turbo Memory. Test results may vary depending on the hardware, software, and overall system configuration. The test, evaluation, and other information provide indicative figures for the performance of Intel products. All tests were performed using Microsoft Windows Vista* Ultimate (build 6000). Speed improvements for loading and running applications will differ depending on the number of applications able to be pre-loaded into the Microsoft ReadyBoost* cache in Microsoft Windows Vista*.
See http://www.intel.co.jp/performance/mobile/benchmarks.htm for more information.

* Wireless connectivity and some features may require you to purchase additional software, services or external hardware. Availability of public wireless LAN access points is limited, wireless functionality may vary by country and some hotspots may not support Linux*-based Intel® Centrino® Pro Processor Technology-based systems. Availability of public wireless WAN access points is limited. System performance measured by MobileMark* 2002. System performance, battery life, wireless performance and functionality will vary depending on your specific operating system, hardware and software configurations.
See http://www.intel.com/products/centrino/ for more information.

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