Embedded 2\textsuperscript{nd} Generation Intel\textsuperscript{®} Core\textsuperscript{™} Processors: Do More Now and in the Future

Jan 5\textsuperscript{th} 2011
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What is the News?

• Intel introduces seven 2nd Generation Intel® Core™ processors with extended lifecycle support featuring the first “visibly smart” micro-architecture.

• Dramatically increase in performance and capabilities for video processing and analytics.

• Empower faster and easier development of embedded solutions across a range of price points.

• Ideal for digital signage, digital security and surveillance, industrial, medical and retail market segments.

• The 2nd generation Intel® Core™ processors allow for future technology innovation without the need to redesign hardware.
Embedded Environment and Trends

- Demand increasing for richer and instantaneous visual experiences
- Expected to do more with fewer design resources
- More Connected and smarter applications; need more Security and Maintenance
Intel is Targeting January 5th to Announce Embedded Supported 2nd Generation Intel® Core™ Processors

- Intel® Core™ i7/i5/i3 Processor-based Platforms for Embedded
  - New 32nm Intel microarchitecture
  - Impressive leap in energy-efficient performance
  - Optimized Intel® Turbo Boost Technology 2.0 and Intel® Hyper-Threading Technology
  - Significant advances in visual and 3D graphics capabilities
  - New Intel® Advance Vector Extensions for enhanced floating point intensive application performance
  - Lower Cost Of Ownership Through Scalability and BOM Reductions

- 11 long-life SKUs launching; 4 Embedded Specific Offerings (E)
- Dual Product Lines for Core i7 and i5 Processors
- Breadth of solutions available from the Embedded Ecosystem

Applications:
- Analytics
- Infrastructure
- Comms
- Digital Security and Surveillance
- Kiosks & ATM's
- Digital Signage
- Industrial Automation
- Medical Portable & Imaging
Embedded 2\textsuperscript{nd} Generation Intel® Core™ Processors: Do More Now and in the Future

Leading Edge Technologies Driving Embedded Innovation

Moving the Connected Continuum Forward with Manageable and Secure Solutions

Driving down Cost and Increasing Ease of Design

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The Media Engine For
Driving Cutting Edge Embedded Applications

Intel® Quick Sync Video delivers 2X gains on HD Media Processing¹
Intel® HD Graphics sees 2X gain versus previous gen on 3D graphics²

1. See Appendix B for details
2. Based on geometric mean of 3DMark* Vantage and 3DMark06*, see Appendix B for details
Performance of 2nd Generation Intel® Core Driving Embedded Advancement

~30% Performance Improvement

Accomplish more in less time with Intel® Turbo Boost Technology 2.0, Intel® Hyper-Threading Technology

Reduce costs to ease development and help TTM with Intel® AVX
Tremendous Customer Design Activity

- Over 55 EBM Board Designs
- 10 Co-Launching Software and Tool Vendors
- Multiple End User Announcements including both Academic and Private
“Medicina a Distancia currently plans the development of a stereoscopic three dimensional medical video transmission system and as we believe that it can be extremely useful in some situations where a patient’s life may be at real risk or that the 3D image can provide details that cannot be transmitted in any other way.” Said Dr. Carlos Iglesias, Co-Founder and President of Medicina a Distancia. Source - http://www.medicinaadistancia.com

“The additional processing power of the Intel® Core™ 2 Extreme computer allowed us to complete all of the visual elements of the course approximately 25 percent faster than with the previous Intel® Core™ 2 Duo processor-based computer, and we expect to see similar improvements with the second generation Intel® Core™ i7 processor-based hardware,” said JB Rajsky, a senior member of Cornell University Autonomous Underwater Vehicle Team. Source - http://www.cuauv.org
Embedded 2\textsuperscript{nd} Generation Intel\textsuperscript{®} Core™ Processors: Do More Now and in the Future

Leading Edge Technologies Driving Embedded Innovation

Moving the Connected Continuum Forward with Manageable and Secure Solutions

Driving down Cost and Increasing Ease of Design
## SKU Fact Sheet

<table>
<thead>
<tr>
<th>Processor</th>
<th>Cores / Threads</th>
<th>Base Frequency</th>
<th>TDP</th>
<th>Package</th>
<th>ECC</th>
<th>Pricing per thousand units</th>
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<tr>
<td>Intel® Core™ i7-2710QE processor</td>
<td>4/8</td>
<td>2.1 GHz</td>
<td>45 W</td>
<td>FCPGA988</td>
<td>No</td>
<td>$378</td>
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<tr>
<td>Intel® Core™ i7-2715QE processor</td>
<td>4/8</td>
<td>2.1 GHz</td>
<td>45 W</td>
<td>FCBGA1023</td>
<td>Yes</td>
<td>$378</td>
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<tr>
<td>Intel® Core™ i5-2510E processor</td>
<td>2/4</td>
<td>2.5 GHz</td>
<td>35 W</td>
<td>FCPGA988</td>
<td>No</td>
<td>$266</td>
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<td>Intel® Core™ i5-2515E processor</td>
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<td>2.5 GHz</td>
<td>35 W</td>
<td>FCBGA1023</td>
<td>Yes</td>
<td>$266</td>
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<td>Desktop</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Intel® Core™ i7-2600 processor</td>
<td>4/8</td>
<td>3.4 GHz</td>
<td>95 W</td>
<td>LGA1155</td>
<td>No</td>
<td>$294</td>
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<tr>
<td>Intel® Core™ i5-2400 processor</td>
<td>4/4</td>
<td>3.1 GHz</td>
<td>95 W</td>
<td>LGA1155</td>
<td>No</td>
<td>$184</td>
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<tr>
<td>Intel® Core™ i3-2120 processor</td>
<td>2/4</td>
<td>3.3 GHz</td>
<td>65 W</td>
<td>LGA1155</td>
<td>No</td>
<td>$138</td>
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Appendix A: AVX Test Configuration - Linux

- Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products. For more information on performance tests and performance of Intel products, visit http://www.intel.com/performance

- Intel® Advanced Vector Extensions (AVX )vs SSE Comparison Setup
  - Single thread execution
  - Emerald Lake Platform (Fab A)
    - BIOS – American Megatrends 4.6.3.2 (Project Version – ASNBCPT1.86C.0023.B00)
    - CPU: Sandybridge D0 stepping (4 core, 2.0GHz, 6MB LLC, Intel® HT Technology off)
    - PCH: Cougarpoint B0 stepping.
    - 2 GB RAM (2x1GB Samsung DIMM DDR3 1333, dual rank, PN: M471B2874EH1-CH9)
    - Western Digital 1TB HDD (WD10EVDS-6)
  - Fedora 13 Linux 2.6.33.3-85.fc13.x86_64
  - Intel® C++ Compiler for Linux version 11.1.073
  - Intel® IPP Performance Tool version 7.0 (part of the IPP package)
    - All individual Intel® IPP measurements were taken using the Intel® IPP performance tool. Standard batch mode (-B) input was used. The automatic timing mode with an accuracy of 1% was used. The tests were run with high priority (Y=HIGH) and on one thread only (N=1). More information on the command line parameters can be obtained by running the performance applications with the -hh switch. Data averaged among in place and direct, fast & accurate switches.

  Frequency domain FIR was compiled in release mode (Release x64) with the ICC compiler. The cache is warmed before the test. Optimizations are enabled using the /O3, -xHost, and -std=c99 compiler flags.

  Data is at fixed CPU clock frequency and may change with Intel® Turbo Boost Technology enabled.

  Software libraries, drivers, operating systems, and compilers used are not fully tuned for performance and additional performance gains may be possible.
Appendix B: Transcode Performance Configurations

- Huron River platform (internal CRB): SandyBridge D1 stepping with GT2: CPU turbo up to 3.2 GHz; graphics dynamic frequency up to 1.3GHz. 8MB cache, 4 cores / 8 threads. CougarPoint B0 stepping. DDR3-1333, 2x2GB, dual channel Win7/32 BR-1008-01YL with 15.21.2191 driver kit

- Transcode video clip characteristics:
  - Source clip: MPEG2 1080P 28.6Mbps
  - Destination clips:
    - VTG destination: AVC 480x272 1Mbps
    - Edit/HD DVR destination: AVC 1080P 10Mbps
    - Authoring/Burn to DVD destination: MPEG2 720x480P 10 Mbps
Appendix B: 3D Performance and Other System Configurations

- System configuration for 2nd Generation Intel® Core Processor Family (quad core) + Intel® HD Graphics 3000: CPU: mobile quad core 2nd Generation Intel® Core Processor Family (ES2 samples) with Intel® Turbo Boost Technology 2.0 enabled up to 3.4GHz. Intel® HD Graphics 3000: dynamic frequency up to 1300MHz. Memory: 2x2GB dual channel DDR3-1600; graphics driver 15.21.2185. Mobile Intel® 6 Series Chipset Family. OS: Microsoft® Windows 7 (64b)

- System configuration for 2nd Generation Intel® Core Processor Family (dual core) + Intel® HD Graphics 3000: CPU: mobile dual core 2nd Generation Intel® Core Processor Family (ES2 samples) with Intel® Turbo Boost Technology up to 3.2GHz. Intel® HD Graphics 3000: 650MHz turbo up to 1350 MHz. Memory: 2x2GB dual channel DDR3-1333; graphics driver 15.21.2158. Mobile Intel® 6 Series Chipset Family, B0 stepping. OS: Microsoft® Windows 7 (64b)

## Appendix C: HW Ecosystem Announcements

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<tr>
<th>Company</th>
<th>2nd Gen Platform</th>
<th>Announcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAEON Technology</td>
<td>• Intel® Q67 chipset + Core™ i3/i5/i7 CPUs&lt;br&gt;• Intel® QM67 chipset + Core™ i5/i7 CPUs</td>
<td>One industrial motherboard with Q67 (IMBA-967) and one COM Express module with QM67 (COM-QM67) for POS, KIOSK, NVE, DVR, Surveillance, Gaming applications</td>
</tr>
<tr>
<td>ADLINK Technology</td>
<td>• Intel® Q67 chipset + Core™ i3/i5/i7 CPUs&lt;br&gt;• Intel® QM67 chipset + Core™ i5/i7 CPUs</td>
<td>Three boards for applications including transportation, military, factory automation, medical and gaming&lt;br&gt;• Express-H, COM Express with QM67&lt;br&gt;• PCI-3970, a 3U CompactPCI blade with QM67&lt;br&gt;• NuPRO-E340, a PICMG 1.3 System Host Board with Q67</td>
</tr>
<tr>
<td>Advanet</td>
<td>2nd Gen Intel® Core™</td>
<td>COM Express boards</td>
</tr>
<tr>
<td>Advantech</td>
<td>• Intel® Q67 chipset + Core™ i3/i5/i7 CPUs&lt;br&gt;• Intel® QM67 chipset + Core™ i5/i7 CPUs</td>
<td><strong>Series of embedded boards:</strong>&lt;br&gt;• MicroATX motherboard with Q67—AIMB-581 (244 x 244 mm)&lt;br&gt;• ATX motherboard with Q67—AIMB-781 (304.8 x 244 mm)&lt;br&gt;• PICMG 1.3 SBC—PCE-5126 with Q67 (338.58 x 126.39 mm)&lt;br&gt;• UP industrial server board with Q67 (ASMB-220) for industrial control, automation equipment and surveillance DVR applications&lt;br&gt;• COM: Express basic module with QM67—SOM-5890 (95 x 125 mm) for high processing, graphic intensive demands, and multi-display applications&lt;br&gt;<strong>Two other products from Networks &amp; Telecom Group</strong>&lt;br&gt;• MIC-5603 AdvancedMC™ dual channel design for mission critical applications requiring low latency &amp; reliable memory access&lt;br&gt;• MIC-3395 6U CompactPCI for telecom, semiconductor test &amp; manufacturing equipment, transportation and industrial workstations</td>
</tr>
<tr>
<td>Avalue</td>
<td>• Intel® QM67 chipset + Core™ i5/i7 CPUs</td>
<td>EPIC module (EPI-QM67) for range of apps including Medical Instruments, PoS/ Kiosk Machines, Digital Signage, Surveillance Devices, Automation Controllers and Military Systems.</td>
</tr>
<tr>
<td>BCM Advanced Research</td>
<td>• Intel® Q67 chipset + Core™ i3/i5/i7 CPUs&lt;br&gt;• Intel® QM67 chipset + Core™ i5/i7 CPUs</td>
<td>Three industrial motherboards for market segments including gaming, retail, security and surveillance, industrial controls and automation, and medical equipment:&lt;br&gt;• MX67QM MiniITX with ATX power uses QM67&lt;br&gt;• MX67QM2 Mini ITX wide range DC power uses QM67&lt;br&gt;• RX67Q Micro ATX uses Q67</td>
</tr>
<tr>
<td>Concurrent Technologies</td>
<td>• Intel® QM67 chipset + Core™ i5/i7 CPUs</td>
<td>6U VXS form factor (VX 81x/09x) for apps in real-time systems and military embedded systems for data acquisition, instrumentation, control systems and signal processing.&lt;br&gt;• Other boards coming in Q1’2011 = TR 80x/39x – 3U VPX; TP 86x/39x – 3U CompactPCI; AM 310/0x0 – 3U AMC</td>
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</table>
## Appendix C: HW Ecosystem Announcements (cont.)

<table>
<thead>
<tr>
<th>Company</th>
<th>2nd Gen Platform</th>
<th>Announcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curtiss Wright</td>
<td>• Intel® QM67 chipset + Core™ i5/i7 CPUs</td>
<td>CHAMP-AV8 6U - its first OpenVPX™ DSP Engine features two quad-core Intel® Core™ i7-2715QE processors and supports Gen2 PCIe-to-sRIO protocol conversion; Available in Rugged air-cooled and conduction-cooled versions for the Aerospace and Defense (A&amp;D) market</td>
</tr>
<tr>
<td>DFI</td>
<td>• Intel® Q67 chipset + Core™ i3/i5/i7 CPUs</td>
<td>Four boards for apps such as industrial control automation, digital signage, kiosk, medical equipment, and gaming.</td>
</tr>
</tbody>
</table>
|                              | • Intel® QM67 chipset + Core™ i5/i7 CPUs               | • Mini-ITX form factor HR100-CRM with QM67  
• COM Express Module HR900-8 with QM67  
• Mini-ITX Embedded Board SB100-NRM with Q67  
• microATX Embedded Board SB330-NRM1 with Q67 |
| Emerson Network Power        | • Intel® QM67 chipset + Core™ i5/i7 CPUs               | Mini-ITX form factor motherboard (MITX-CORE-800 series) for makers of intelligent kiosks, digital signage, medical clinical equipment and gaming machines.  |
| Ennoconn Corporation         | Intel® Q67 chipset + Core™ i3/i5/i7 CPUs               | Micro-ATX motherboard (ADE-8062) for interactive clients, particularly, ATM, Point of Sale, Digital Displays, and Surveillance, as well as Factory Automation, Gaming and entertainment applications |
| Eurotech                     | Intel® QM67 chipset + Core™ i5/i7 CPUs                 | COM Express module (Adbc8034) for industrial apps  |
| EVOC                         | • Intel® QM67 chipset + Core™ i5/i7 CPUs               | EPI-1817LNAR with EVOC’s self-innovated EPI bus technology for embedded and industrial PCs  |
| Extreme Engineering Solutions, Inc. (X-ES) | • Intel® QM67 chipset + Core™ i5/i7 CPUs               | • XPedite7470, a conduction- or air-cooled 3U VPX SBC for floating-point intensive applications such as radar, image processing, and signals intelligence  
• other form facots will be available throughout 2011 including 6U VPX, 3U and 6U CompactPCI, VME, and XMC |
| GE Intelligent Platforms     | 2nd Gen Intel® Core™ processor family                 | • SBC324 3U OpenVPX single board computer is first of five address mil/aero applications beyond command/control such as signal processing, ISR (intelligence, surveillance, reconnaissance) and radar/sonar.  
• 6U VPX, 6U VME and 6U CompactPCI® single board computers will also be announced in the near future, together with a multiprocessor platform |
| IBASE Technology             | • Intel® Q67 chipset + Core™ i3/i5/i7 CPUs             | • MB960 ATX Motherboard with Q67 for industrial apps such as medical and imaging systems, industrial automation, gaming and multimedia.  
• MB956F Mini-ITX Motherboard with QM67 for gaming, POS, digital signage and server market segments |
## Appendix C: HW Ecosystem Announcements (cont.)

<table>
<thead>
<tr>
<th>Company</th>
<th>2nd Gen Platform</th>
<th>Announcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface</td>
<td>• Intel® QM67 chipset + Core™ i5/i7 CPUs</td>
<td>MPC-F022Q series, ATX form factor industrial controller</td>
</tr>
</tbody>
</table>
| Kontron          | 2nd Gen Intel® Core™ processor family                                            | Over 10 boards for a variety of embedded applications  
• Frist product is COM Express™ basic ETXexpress™ SC Computer-on-Module.  
• In Q1 2011, a mini-ITX, Flex-ATX embedded motherboard and 6U CompactPCI® blade will follow.  
• Other platforms planned for 2011 include 3U CompactPCI®, 3U VPX, AdvancedMC®, PCIe/104™, ATX embedded motherboards and several industrial PCs.  
• Kontron's value-added middleware, and strength in offering market-specific I/Os via FPGA, even more specific applications can be custom-tailored. |
| Lanner           | • Intel® Q67 chipset + Core™ i3/i5/i7 CPUs                                      | 1U appliance (Fw-8770) with Q67 delivers a host of new features in a network appliance including generation 3 bypass, IPMI and amazing port density for enterprise security applications.  
1U industrial grade appliance (Fw-7572) with QM67, low power consuming network appliance for extreme temperature deployment scenarios such as process line security and SCADA system security. |
| Mercury Computer Systems | • Intel® QM67 chipset + Core™ i5/i7 CPUs                                      | Ensemble™ Series 6U OpenVPX® LDS6521 and the 3U OpenVPX SBC3510 modules are available in air-cooled and conduction-cooled rugged versions for extremely demanding ISR, defense, and aerospace applications |
| MSI              | • Intel® QM67 chipset + Core™ i5/i7 CPUs                                         | Upgraded version of IM-QM67 for the Industrial Platform Computing (IPC) market segment. Motherboard supports multiple display outputs in a mini-ITX form factor board. |
| PFU              | • Intel® HM65 chipset + Core™ i5/i7 CPUs                                         | Plug-N-Run™ E2, the latest offering in its high performance COM Express product line for industries that require high system performance and low energy consumption including network server appliances, testing and measurement (robotics, industrial automation) and digital signage |
| Portwell         | • Intel® Q67 chipset + Core™ i3/i5/i7 CPUs                                      | iWade-8011, a new Mini-ITX form factor embedded system board is first in a series with Q67 for applications in gaming, kiosk, digital signage, medical/healthcare, defense and industrial automation and control.  
• Ruby-D712VG2AR industrial ATX motherboard for applications in factory automation, gaming, medical, digital signage, surveillance security monitoring and kiosks. |
| RadiSys          | • Intel® QM67 chipset + Core™ i5/i7 CPUs                                         | Procelerant™ CEQ67, a quad-core performance Type 6 COM Express Revision 2.0 module for industries including medical, enterprise telecom and mil/aero creating a flexible, modular and upgradeable platform for solutions such as ultrasound imaging, radar, command and control devices and security systems. |
| Trenton          | • Intel® Q67 chipset + Core™ i3 CPU                                             | TSB7053, a PICMG® 1.3 single board computer (SBC) design, enables industrial automation, medical imaging and military & aerospace system designs that deliver high-performance computing flexibility with a greater level of security and built-in support for multiple video connections. |
### Appendix C: SW & Tools Announcements

<table>
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<th>Company</th>
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<tr>
<td>American Megatrends Inc. (AMI)</td>
<td>Apio 4.x UEFI BIOS firmware now supports 2nd generation Intel® Core™ processor family. AMI’s BIOS solutions cover nearly all of the enterprise, embedded and consumer-oriented processor segments.</td>
</tr>
</tbody>
</table>
| CriticalBlue                     | • Optimized support within Prism for the 2nd generation Intel® Core™ processor family; software developers can now analyze their existing Sw apps, quickly evaluate the tangible benefits of these new processors, and select the appropriate Intel processor.  
• Integration with Prism allows Intel’s customers to analyze their existing single-threaded application code for use in multi-core 2nd generation Intel Core™-based devices and follow a simple path through implementation, performance tuning and verification. |
| Green Hills Software             | • Will support 2nd generation Intel® Core™ processor family with INTEGRITY® real-time operating system, INTEGRITY Secure Virtualization (ISV) technology, MULTI® integrated development environment (IDE), optimizing C/C++ compilers, the DoubleCheck® static analyzer and complete JTAG hardware probes:  
• For embedded market segments such as in-vehicle infotainment, industrial control, point-of-sale, medical and automation.                                                                                     |
| Insyde Software                  | InsydeH2O® UEFI BIOS will support 2nd generation Intel® Core™ processor family for consumer-based desktop, mobile and embedded applications. InsydeH2O delivers comprehensive support for the latest UEFI 2.x industry specifications leveraging the Intel “Tiano” UEFI Framework code architecture.                                                                                                               |
| LynxWorks                        | LynxSecure 4.0 will provide virtualization solutions for 2nd generation Intel® Core™ i7 and i5 processor-based embedded and computer systems. LynxSecure is a separation kernel and embedded hypervisor that provides an environment in which multiple guest OSES & their apps can execute at the same time, in their own virtual partitions, without compromising security, reliability or data integrity. |
| NA Software                      | Vector Signal/Image Processing (VSIP) library optimised specifically for new Intel® Advanced Vector Extensions (Intel®AVX) contained in the 2nd generation Intel® Core™ processor family. N.A. Software already markets a highly optimised VSIPL Library for Intel® processors with Streaming SIMD Extensions (SSE). VSIP is an application programming interface (API) defined by an open standard (www.vsipl.org) and widely used in military DSP applications. |
| Real-Time System                 | Real-Time Hypervisor support for the 2nd generation Intel® Core™ processors allows the parallel execution of multiple, independent OSES on a single hardware platform. By utilizing the RTS Hypervisor, a traditional embedded system consisting of an industrial PC with additional real-time hardware can now be replaced by a single hardware solution.                                                                                   |
| Run-Time Computing               | VSI/Pro® 1.20 optimized to utilize 2nd generation Intel® Core™ Microarchitecture. VSI/Pro® supports the Vector Signal and Image Processing (VSIPL) industry standard (www.vsipl.org) for signal and image processing functionality on DSP and COTS processors. VSI/Pro® is field-deployed, standard-based software for the Mil/Aero COTS markets. |
| TenAsys                          | • Validated three key products on 2nd generation Intel® Core™ processor family: INT-time® for Windows® Real-Time Operating System (RTDS), eVM® for Windows Embedded Virtualization Manager and INtime Distributed RTOS.  
• 2nd Gen Intel® Core™ processor's increased graphic and processing throughput, coupled with INT-time's support for real-time determinism, enables complex data and time critical acquisition and processing in apps such as 3-D medical imaging systems. |
| Wind River                       | Will expand hardware support for the 2nd generation Intel® Core™ processor family on its VxWorks and Wind River Linux operating system platforms, Wind River Hypervisor, Wind River Workbench and Wind River Workbench On-Chip Debugging multi-core JTAG tools and provide Wind River Simics model library pre-silicon support. For customers in the aerospace and defense, industrial, medical, and networking market segments, for a variety of use cases such as military radar imaging or patient monitoring systems. |
### Appendix C: Industry Announcements

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<th>Company</th>
<th>Announcement</th>
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<tr>
<td>Cornell University</td>
<td>Cornell University Autonomous Underwater Vehicle (CUAUV) Team’s latest vehicle, codenamed Zephyr, will upgrade to a 2nd generation Intel® Core™ processors. The 2nd generation Intel® Core™ i7 processor will allow CUAUV to continue developing increasingly higher performance machine vision algorithms and explore new techniques with higher computational overhead, such as stereo vision, pose estimation, and structure for motion.</td>
</tr>
<tr>
<td>Medicina a Distancia</td>
<td>Will use 2nd generation Intel® Core™ i7 processor to improve image quality and overall performance of the systems they design and build that deliver care to patients who are living in places where access to health systems or medical specialists is limited, insufficient or nonexistent. With capabilities of just the CPU, Medicina can achieve high-quality videoconferencing in systems used in portable telemedicine workstations that have no physical CODEC.</td>
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2nd Generation Intel® Core™ i7 and Intel® Core™ i5 Processor-based Platforms for Embedded Computing (formerly codenamed: Huron River)

- Up to 20 lanes of PCI Express® Gen2
- Embedded Display Port
- Intel® Core™ i7 or Intel® Core™ i5 Processor
- Dual Channel DDR3 1333/1600
- Intel® HD Graphics 3000
- Analog VGA
- Display Ports HDMI, DVI, DP, SVOD
- Intel® High Definition Audio
- 8 PCI Express x1
- Intel® GbE LAN PHY
- Intel® QM67 Express Chipset
- 2 SATA 6 Gbps and 4 SATA 3 Gbps Ports
- 14 Hi-Speed USB 2.0 Ports

*Intel® HM65 Express chipset also available with a subset of features.

*All SKUs: support 1333 MT/s, 1 DIMM per channel (1 DPC); the PGA 4-core SKU supports 1333 MT/s, 2 DIMM per channel (2 DPC); the PGA 4-core SKU also supports 1600 MT/s but only with 1 DIMM per channel (1DPC).
2nd Generation Intel® Core™ i7, Intel® Core™ i5 and Intel® Core™ i3 Processor-based Platforms for Embedded Computing (formerly codenamed: Sugar Bay)

- **PCI Express® x16 Gen2**
- **Dual Channel DDR3 1066/1333**
- **Analog VGA**
- **Display Ports HDMI, DVI, DP, SDVO**
- **Intel® High Definition Audio**
- **2 SATA 6 Gbps + 4 SATA 3 Gbps Ports**
- **8 PCI Express x1 Gen2**
- **4 PCI Bus Masters**
- **Intel® GbE LAN PHY**
- **14 Hi-Speed USB 2.0 Ports**

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