NOVEMBER 2010

Intel® Parallel Studio XE 2011 and Intel® Cluster Studio SALES CARD

OVERVIEW

Intel® Parallel Studio XE and Intel® Cluster Studio are designed specifically for software developers using the C++ or Fortran programming language on Windows* and Linux*. These tools allow developers to deliver code on time, with the highest level of performance, and the least number of defects from cluster to desktop to device, enabling developers to innovate, optimize end-user experiences, and pull more from the latest Intel® multicore processors.

Intel® Parallel Studio XE

› Industry-leading C/C++ and Fortran compilers, libraries, and analysis tools help deliver advanced performance to applications.

› Intel Parallel Studio XE is a bundle of three products:

1. **Intel® Composer XE**
   - **New:** Most Fortran 2008 (including Co-Arrays) and Fortran 2003 features
   - **New:** More parallelism-development features with Intel PBB
   - **New:** Optimizations for the new Sandy Bridge processor
2. **Intel® Inspector XE**
   - **New:** Pinpoint difficult-to-find memory and threading errors before they happen
3. **Intel® VTune™ Amplifier XE**
   - **New:** More intuitive interface, fast statistical call graph, and timeline view
   - **New:** The performance profiler finds bottlenecks in serial and parallel code that limit performance

Intel® Cluster Studio

› Industry-leading C/C++ and Fortran compilers, libraries, MPI library, and messaging analyzer support development of scalable MPI applications.

› Intel Cluster Studio is a bundle of three products for MPI developers:

1. **Intel® Composer XE**
   - **New:** Most Fortran 2008 (including Co-Arrays) and Fortran 2003 features
   - **New:** More parallelism-development features with Intel PBB
   - **New:** Optimizations for the new Sandy Bridge processor
2. **Intel® MPI Library**
   - **New:** Enhanced scale of Intel MPI Library to scale up to 60K cores
3. **Intel® Trace Analyzer and Collector**
   - **New:** Auto-tuning capabilities

TARGET CUSTOMERS

Intel Parallel Studio XE is intended for software developers from three main segments:

1. **High-performance computing (HPC)**
   - Scientific research centers and universities
   - Weather forecast/climate research, military
   - Oil exploration/geophysics (seismic simulation, reservoir modeling)
   - Manufacturing (CFD/FEA/simulation of cars, planes, aerospace, devices, etc.)
   - Finance (investment banks / trading / risk management)
2. **Independent software vendors' C++ programmers (Microsoft Visual Studio*/Linux*) working on:**
   - Image processing
   - Signal processing
   - Gaming
   - Enterprise
3. **Industrial developers and embedded system manufacturers**
   - Medical devices
   - Equipment manufacturers

TERMINOLOGY

Compiler

A compiler is a computer program that translates text written in a computer language (the source code) into another computer language (the target language). The output is usually the executable program.

Multicore Processor

A multicore processor (or CPU) combines two or more independent cores into a single package composed of a single integrated circuit (IC). A quad-core processor (e.g., "Intel® Core™2 Quad") contains four cores. A multicore microprocessor implements multiprocessing in a single physical package. The number of cores in a CPU is expected to continue to grow.

Multithreading

As multicore CPUs have the ability to run different processes simultaneously, multithreading is a way for one application to execute different tasks in parallel (instead of "serial"), each on a different core, thereby taking advantage of the power of multicore CPUs.

Fortran / C++

Fortran is a programming language used especially for numerically intense calculations in scientific applications. C++ is a general-purpose, object-oriented language widely used to develop performance and data-hungry applications (multimedia, games, databases, etc.).

Cluster

A computer cluster is a group of linked computers working so closely together as to, in effect, form a single computer. The components of a cluster are commonly called "nodes" and are connected to each other.

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FEATURE COMPARISON

		Intel® Parallel Studio	Intel® Parallel Studio XE	Intel® Cluster Studio
Intel® Parallel Studio XE	**Static security analysis**		✓	✓
Composer	C++ optimizing compiler	✓	✓	✓
	Fortran optimizing compiler		✓ [1]	✓
	Co-Array Fortran		✓	✓
	Profile guided optimization		✓	✓
	Parallel Debugger Extension	✓	✓	✓
	Threaded performance libraries (Intel® IPP)	✓	✓	✓
	Threading libraries (Intel® TBB, Intel® ArBB)	✓	✓	✓
	Threaded math libraries (Intel® MKL)		✓	✓
	Intel® Parallel Building Blocks (Intel® PBB)	✓	✓	✓
Inspector	Memory and thread analysis	✓	✓	
	Advanced memory, thread analysis		✓	
Amplifier	Hotspot, concurrency, locks and waits profiling	✓	✓	
	Timeline, frame analysis		✓	
	Event-based sampling		✓	
	Source view	✓	✓	
	Assembly view		✓	
Advisor	Threading advice for serial applications	✓		
Cluster	Optimized MPI library			✓
	MPI timeline view, MPI event view			✓
	Find MPI deadlocks, data corruption, parameter errors			✓
User Interface and Support	Microsoft Visual Studio* integration	✓	✓	✓
	Standalone graphical interface		✓	✓
	Command line	Basic	Advanced	Advanced
	Support: forums or Intel® Premier Support *(includes forums)*	Premier	Premier	Premier

LICENSING/SUPPORT AND MAINTENANCE

Purchase includes two components (ESD or box):

› A perpetual license to use the software—no time-out

› A fixed-term (one-year) support services contract – technical support and product updates. The support model is online through the Intel® Premier Support website.

Support Services Renewals (SSR):

› At the end of the fixed term the customer may renew the support services contract.

› By maintaining current support, the customer will be assured of getting any new releases.

Upgrades from Old Products:

› The customer can upgrade from old products to the Intel Parallel Studio XE and/or Intel® C++ Studio XE and/or Intel Cluster Studio suites.

Licensing Models:

› **Single User:** This is the most common licensing model. Products are priced on a "per individual user" basis (named user). What you will need to know: the number of individual developers requiring product licenses.

› **Floating:** Several users can share licenses at the same time on several systems ("concurrent user" or "shared licenses"). The licenses are managed from a licensing server. Users can request up to the maximum number of licenses. As soon as a license is released from one user, another user can request it. Possibilities: two-seat or five-seat licenses.

› **Bulk licenses:** Packs of 20 or 50 licenses are available for both single-user and floating licenses.

TERMINOLOGY

Library

A library is a collection of hyper-optimized code modules ("routines") addressing specific topics that developers can include in their application without the need to "reinvent the wheel."

Intel® Math Kernel Library (Intel® MKL)

Intel MKL is a collection of mathematic/ numeric functions and routines (e.g., matrix operations, FFTs, etc.) and is compatible with C++ and Fortran compilers as well as other compilers (e.g., Microsoft*, GNU Compiler Collection).

Intel® Integrated Performance Primitives (Intel® IPP)

Intel IPP is a collection of multimedia and data-oriented routines (e.g., image, sound, signal, compression, cryptography).

Intel® Threading Building Blocks (Intel® TBB)

Intel TBB is a C++ template library for writing software programs that take advantage of multicore processors. The library consists of data structures and algorithms that allow a programmer to avoid complications arising from the use of native threading packages such as POSIX threads or Windows* threads.

Intel® Message Passing Interface Library (Intel® MPI)

Intel MPI is a library of interface specifications that allows many computers to communicate with one another. It is used in computer clusters and supercomputers.

Intel® Parallel Building Blocks (Intel® PBB)

Intel PBB is a comprehensive, complementary set of programming constructs that allows to mix and match new parallel models within an application to suit your environment/application and algorithms. Intel PBB includes Intel TBB, Intel® Cilk Plus, and Intel® Array Building Blocks.

Intel® Trace Analyzer and Collector

Intel® Trace Analyzer and Collector accelerates the analysis and tuning cycle of MPI-based cluster applications.

More Information/Contacts

Product information: **http://software.intel.com/en-us/intel-sdp-home**

Pricing and ordering information: **http://software.intel.com/en-us/articles/intel-software-products-reseller-center/#authorizeddistributors**

Contact Intel: **softwarechannel@intel.com**

Try a free 30-day trial!

To download a free evaluation of Intel Parallel Studio XE and/or Intel Cluster Studio, visit: **www.intel.com/software/products/eval**

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