



The Next-Generation Development and Deployment Platform

Microsoft® Visual Studio® 2008 and Quad-Core AMD Opteron™ processors provide an exciting combination for Microsoft Windows® and .NET application developers.

Quad-Core AMD Opteron™ processors with a native multi-core design offer software developers an exciting microarchitecture for Windows® application development and deployment.

Quad-Core AMD Opteron processors, based on AMD's revolutionary Direct Connect Architecture, offer industry-leading performance-per-watt capabilities that help to decrease energy consumption, HyperTransport™ technology links (up to three per processor) that deliver the fast chip-to-chip communications needed to increase software efficiency, and an integrated on-chip memory controller that delivers high-speed, low-latency memory access. The Quad-Core AMD Opteron processor offers additional functionality including AMD Memory Optimizer Technology, AMD Balanced Smart Cache, and the AMD Wide Floating-Point Accelerator which can help boost the performance of the most demanding software and workloads, as well as hardware-assisted AMD Virtualization™ (AMD-V™) technology with Rapid Virtualization Indexing that enables an efficient virtualization environment for all types of applications and environments.

These innovative technologies, when coupled with specific optimizations available with Microsoft® Visual Studio® 2008, make Quad-Core AMD Opteron processor-based platforms excellent for Microsoft Windows and .NET development.

Historic Partnership

Microsoft and AMD have collaborated for years to integrate industry-leading software and hardware and deliver new levels of innovations to the x86 computing market. The companies share a common goal of providing application developers with the tools they need to be successful writing optimized software for today's energy-efficient, 64-bit, x86, multi-core processors.

The combination of Microsoft Visual Studio 2008 running on Quad-Core AMD Opteron processors provides an optimized platform well-suited for building and running .NET and Windows applications of all types, from native Win32 desktop applications to managed ASP.NET server applications using the .NET Framework 3.5.

Microsoft operating systems, applications, and developer tools offer an enhanced experience on all AMD processor-based computing platforms. The latest versions of Microsoft's software — including Windows Vista®, Windows Server® 2008, Visual Studio 2008, and SQL Server® 2008 — also benefit from added collaboration between Microsoft and AMD engineers to optimize for Quad-Core AMD Opteron processors. This collaboration benefits all applications built with Microsoft Visual Studio 2008 when running on AMD platforms.



AMD
Smarter Choice



Microsoft® Visual Studio® 2008 Optimizations

The central element in Microsoft® Visual Studio® 2008 that leverages the advanced technologies in Quad-Core AMD Opteron™ processors is its C++ compiler, which generates the vast majority of code today for Windows native applications and the majority of commercial business, consumer, and entertainment applications.

The Microsoft Visual C++ compiler included in Microsoft Visual Studio 2008 includes optimization switches and compiler intrinsics that generate code specifically for the latest generation of AMD Opteron processors. For example, Microsoft Visual Studio 2008 supports SSE4a intrinsics that generate code for new instructions supported by Quad-Core AMD Opteron processors. A number of compiler switches, such as /O1, /O2, /GL, and /fp:fast, also generate code that runs favorably on Quad-Core AMD Opteron processor-based platforms. The Microsoft Linker also offers optimizations specifically for AMD processors, such as the /NXCOMPAT switch to mark Windows Vista® applications that are compliant with AMD's NX (No Execute) Enhanced Virus Protection¹ technology.

AMD Tools And Solutions

Microsoft and AMD engineers have collaborated to integrate and optimize AMD's software development tools and libraries with Microsoft Visual Studio 2008. The most visible example of this cooperation is the AMD CodeAnalyst Performance Analyzer, available at no charge from AMD.

AMD CodeAnalyst, a powerful tool that analyzes software performance on AMD microprocessors, runs as an extension to Microsoft Visual Studio 2008, providing developers with a seamless solution for static code analysis and run-time profiling of .NET, Win32, and Win64 applications.

AMD CodeAnalyst supports Instruction-Based Sampling (IBS), a new technique that can be used on Quad-Core AMD Opteron processors to provide more precise performance analysis and overcome the limitations of conventional performance counter sampling.

Central to application performance optimization are two advanced libraries, the AMD Performance Library and the AMD Core Math Library. These libraries are specifically designed to support multi-threading and to take advantage of key features of Quad-Core AMD Opteron processors.

The AMD Performance Library (APL) is a collection of runtime routines that accelerate application performance, reduce development time, and enhance debugging capabilities. The APL includes popular low-level software routines beginning with simple arithmetic and extending into rich domains, such as image and signal processing.

The APL is a static library for both 32- and 64-bit build environments that leverages the IntelliSense code completion technology built into Microsoft Visual Studio 2008. The APL not only contains functionality for SSE optimizations, but also specific functions to enhance the development of multi-core applications for AMD Opteron processors without penalizing execution on other platforms.

The AMD Core Math Library (ACML) is the optimal solution for applications that require numerical computation, such as matrix transformations, dot products, linear equations, or Fast Fourier Transforms (FFTs). The ACML integrates into Microsoft Visual Studio 2008 as both a static and dynamic library, and works with both 32- and 64-bit build environments.

The Perfect Combination

For development of Windows and .NET applications, AMD recommends Microsoft Visual Studio 2008 running on AMD Opteron processors. Thanks to years of close collaboration between Microsoft and AMD, this hardware/software combination allows for optimal code generation for current and future processors inside a seamless Integrated Development Environment.

The performance and advanced functionality of Quad-Core AMD Opteron processors, the industry-leading Microsoft Visual Studio 2008 development suite from Microsoft, and the close integration between the two, makes for an optimal software development experience for Windows and .NET.



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¹ As part of a comprehensive security program, AMD strongly recommends enabling Enhanced Virus Protection (EVP) and using up to date third party anti-virus software.