

MultiCore Plus SDK

Comprehensive Programming Framework for Multicore Processors

- Enhances application performance and developer productivity
- Includes software tools and libraries specifically for Cell-based application development
- Reduces the challenge of first-time multicore development
- Enables portable, processor-agnostic multicore programming
- Helps you take full advantage of the Cell BE processor's architecture

The MultiCore Plus™ SDK (Software Development Kit) from Mercury Computer Systems is a suite of software products specifically designed for next-generation multicore processors such as the Cell Broadband Engine™ (BE) processor. The SDK includes a comprehensive programming framework, highly optimized math libraries, and a powerful debug and analysis tool.

The focus of the MultiCore Plus SDK is application performance and developer productivity. This seamless package of software development tools and libraries helps you take full advantage of the Cell BE processor's architecture to maximize your application's resources and boost performance.

Ready for IBM Technology Solution

The Ready for IBM Technology Mark certifies that the MultiCore Plus SDK has met IBM-specified standards for compatibility with IBM Microelectronics products and services. Ready for IBM Technology solutions are designed to help original equipment manufacturer (OEM) customers speed time to market, reduce development risk, lower development costs, and improve return on investment.

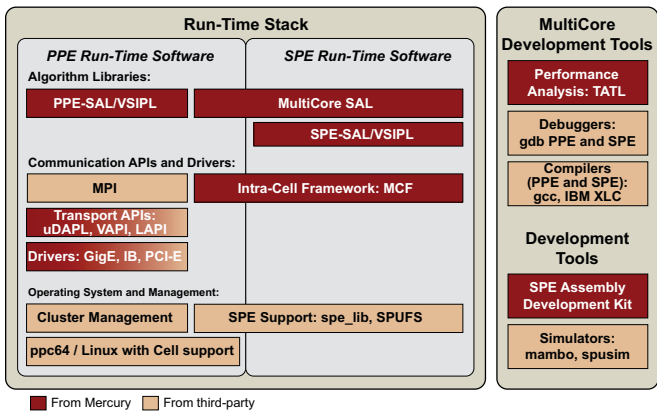


Figure 1. MultiCore Plus SDK software stack

Fully Integrated Software Tools and Libraries

The MultiCore Plus SDK consists of the following software components:

• MCF (MultiCore Framework)

Software framework to manage concurrent processes and perform distributed computation within the Cell BE processor and to x86 processors connected with PCI Express®. MCF provides fine-grained control for managing tasks, communication, and data movement in an easy-to-use, intuitive interface that helps you achieve maximum performance on heterogeneous multicore processors such as the Cell BE processor.

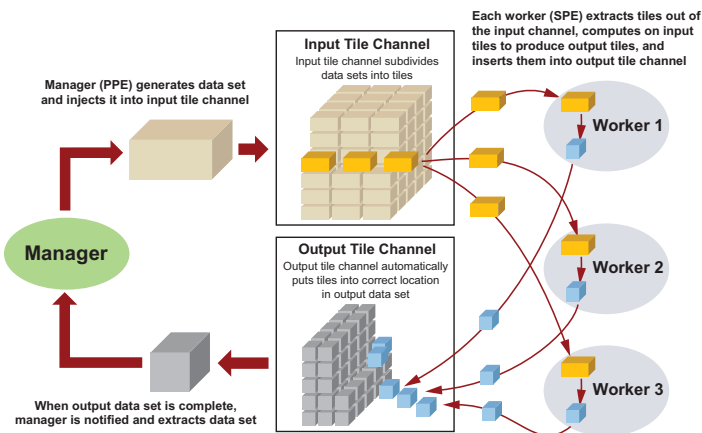


Figure 2. MCF management, communication, and data movement

• SAL (Scientific Algorithm Library)

Library of more than 600 functions for use in compute-intensive applications, with over a hundred image and signal processing functions optimized for the Cell architecture. SAL delivers the best performance in the industry for critical algorithms such as FFTs and other signal processing functions.

• **TATL™ (Trace Analysis Tool and Library)**

Minimally intrusive software logic analyzer that allows developers to visualize processor interactions among synergistic processor elements (SPEs) in a single Cell BE processor and between multiple Cell BE processors. This powerful debugging tool is essential for multiprocessor and multicore application debugging.

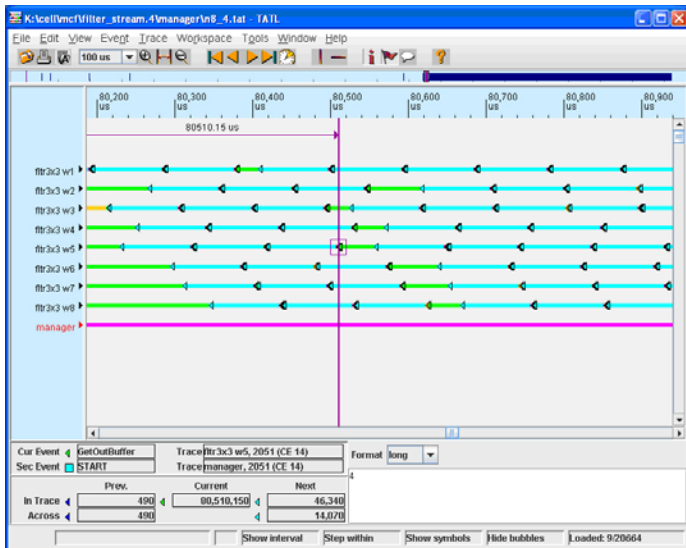


Figure 3. TATL Viewer showing MCF workers on SPEs

• **PixL™ (Image Processing Algorithm Library)**

Comprehensive set of integer-based mathematical routines that helps developers meet the stringent high-throughput, low-latency demands of image processing applications. The PixL library includes over 300 common image-processing routines that accelerate integer mathematical operations by 8 to 16 times over scalar operations.

The following software component is available in addition to the SDK.

• **SPEAD-K (SPE Assembly Development Kit)**

Assembler pre-processor, optimizer, and macro library that support efficient programming of SPEs.

Note: SPEAD-K is available separately and not as part of the standard SDK release.

MultiCore Plus SDK Software

(32/64-bit application support)

MCF (MultiCore Framework)	PPE/SPE
TATL (Trace Analysis Tool and Library)	PPE/SPE
SAL (Scientific Algorithm Library)	PPE/SPE
PixL (Image Processing Algorithm Library)	PPE

Additional Software Available from Mercury

MCPDIAGS (MultiCore Plus Diagnostics)	PPE/SPE
SPEAD-K (SPE Assembly Development Kit)	SPE

System Requirements

Supported Cell-based systems

- All Mercury Cell-based systems
- Sony PlayStation® 3

Operating system

- Linux®

Cross-development host

- Linux

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