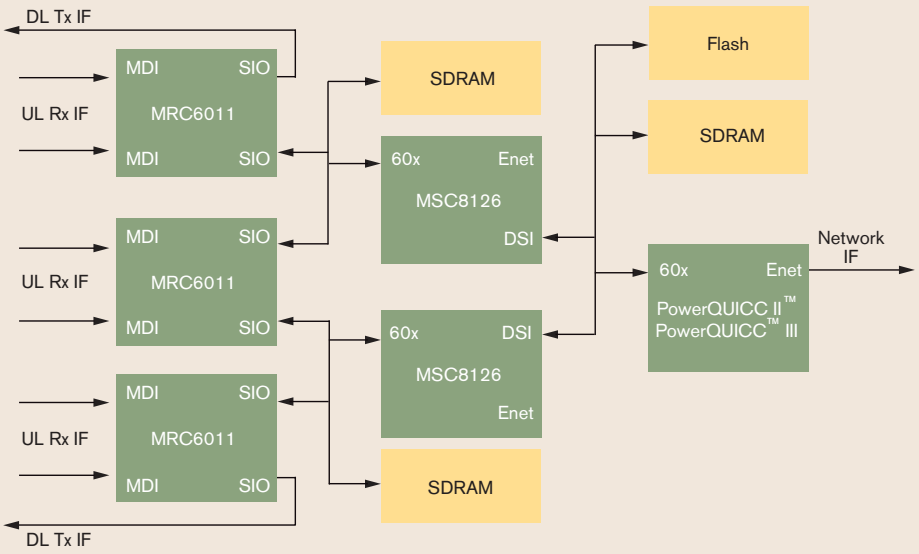
Smart Baseband Solution

Wireless infrastructure vendors face multiple market challenges—from intense cost pressures, to rapidly evolving wireless standards, to significant R&D risks—in their quest to deliver basestation platforms that facilitate the transition from 2.5G to 3G wireless networks. Freescale's Smart Baseband Solutions offer the advanced Reconfigurable Compute Fabric (RCF) and digital signal processor (DSP) components, along with library modules and development tools, that manufacturers and designers need to develop flexible, cost-effective and programmable baseband processing systems that support multiple standards, such as WCDMA, CDMA2000, TD-SCDMA and EDGE technology. Along with supporting system-level flexibility, a consistent design environment for the entire baseband and efficient C and assembly programming, Freescale's Smart Baseband technology is based on optimized processor-application mapping required to increase capacity, deliver high performance and maintain low-power dissipation per channel.

WCDMA SYSTEM ARCHITECTURE (128 AMR VOICE USERS)



Programmability. Scalability. Reconfigurability.

The MRC6011 RCF device offers an efficient processing solution for a wide range of computationally intensive applications, such as baseband processing for 3G and Broadband Wireless Access systems. Working in tandem with Freescale's MSC8126 StarCore® technology-based DSPs, the MRC6011 RCF device is engineered to enable system designers to adapt algorithms and fix bugs before and after deployment, fine-tune baseband architecture and manage partition and load on the fly, design wireless platforms that support multiple standards, and add advanced capabilities, such as adaptive antenna (AA) and multi-user detection.

Smart Baseband Solution Highlights

> Equips manufacturers and designers with the programmability and flexibility needed to adapt to new standards and markets

> Speeds time-to-market and helps increase revenue by saving development resources and minimizing risk

> Ability to deploy advanced features that differentiate customer offerings

> Encourages long time-in-market due to ability to modify equipment in the field

> Offers optimized use of computing resources with ability to adjust resources based on traffic load

> Offers competitive system cost and lower overall cost of ownership

Smart Baseband Solution Features

> MRC6011

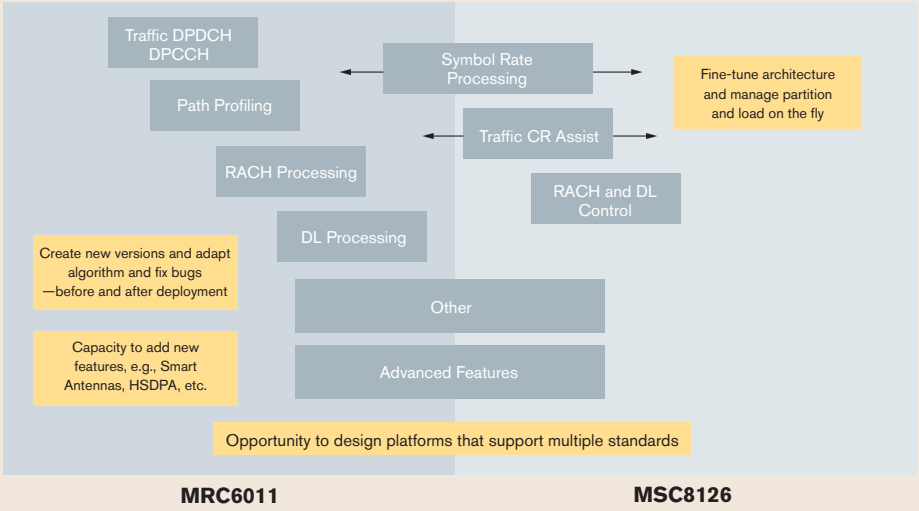
- Optimized for MIPS-intensive repetitive tasks such as chip rate processing

> MSC8102/8126

- Multicore DSP for higher complexity irregular tasks such as symbol rate processing

> Extensive and growing library of 3G application software modules that supports Metrowerks' award-winning CodeWarrior™ IDE

TASK PARTITIONING AND SYSTEM-LEVEL FLEXIBILITY FOR WCDMA



Software Development Tools

> Similar IDE for MRC6011 and MSC8126

> Real-time debug capability

> Optimized C compiler

The Smart Baseband Solution gives system designers a single platform that is designed to support multiple standards that aggressively shorten development cycles, facilitate an integrated systems approach to customizable baseband offerings, and make it possible to deploy upgrades, enhancements and debugs on-the-fly. All of this adds up to a cost-effective, programmable alternative to ASIC- and FPGA-based baseband design that is designed to enhance present 2.5 and 3G wireless networks while driving innovative approaches to future generations of wireless infrastructure.

Based on an array of optimized processing elements, Freescale's Smart Baseband Solution offers a cost-effective, programmable alternative to ASIC- and FPGA-based baseband designs with system-level flexibility.

About Freescale's Software Library Modules

As part of an ongoing effort to provide comprehensive solutions, Freescale provides libraries of application software modules for both the MRC6011 and the MSC8126. Versions of the libraries include a UMTS application with both chip rate and symbol rate modules, and a TD-SCDMA module targeted at joint uplink processing. These highly optimized C-callable modules are designed to facilitate significant reductions in development and debug time.

Learn More: For more information about Freescale products, please visit **www.freescale.com**.

SMARTBASEFS
REV 3

Launched by Motorola
freescale semiconductor