

Mindspeed Comcerto® 2000

The Comcerto 2000 is a new generation of cost-effective high-performance communications processors for the next-generation of networks. Combining powerful dual-core ARM Cortex A9 processors with OPAL™ software defined networking acceleration and a powerful suite of peripherals, the Comcerto 2000 is ideally suited to switching, routing, security, multi-service gateways, enterprise class wireless access points & controllers, network attached storage and Voice-over-IP (VoIP) applications for residential, enterprise and networking equipment for small and medium businesses.

The first two devices in the series are Comcerto C2100 and C2200 with single-core and dual-core 1.2GHz ARM Cortex-A9 processors, respectively, with symmetric multi-processing (SMP), coherent level two cache and TrustZone® security. Both include Mindspeed's OPAL (Open Packet Acceleration Logic) engine, a wire rate gigabit-speed programmable data-path acceleration engine and a comprehensive set of I/O and peripherals, as well as support for DDR3 with ECC.

In addition to the high-performance ARM IP-based subsystem, OPAL is a collection of fully-programmable wire speed network accelerators, which include powerful engines for IPv6 packet forwarding / Network Address translation (NAT), firewall/VPN, IPSec/SSL security processing, Deep Packet Inspection (DPI), QoS and storage network processing.



Through intelligent offloading, the Comcerto 2000 range supports wire rate Gigabit-per-second IPv6 NAT and firewall applications without utilizing the ARM Cortex processors keeping them fully available to run value-added applications from OEM or service providers. This allows customers to differentiate and monetize their services. For example, in wireless enterprise access points for dual-band, multi-radio 802.11 ac, the system can offload Wi-Fi and protocol packet processing while ARM Cortex processors are available to run enterprise class services such as policy, authentication and roaming.

Mindspeed has built up a solid reputation in delivering carrier-grade software and SoCs for broadband customer premises equipment (CPE) to some very demanding carriers. With the Comcerto 2000 and the upcoming devices in the family, Mindspeed is aggressively expanding into the more mainstream communications processor market.

Software defined networking is a critically important area for the networking industry, and is now established in the core-of the network; but Mindspeed supporting it in this family of processors will extend its deployment to a variety of new applications. Combined with ARM's emphasis on the networking segment, this represents a significant challenge to some incumbent processor vendors.



-- **Jeff Heynen**
Directing Analyst, Broadband Access and Video
Infonetics Research

Products

C2100	Comcerto Single-Core Communications Processor
C2200	Comcerto Dual-Core Communications Processor

[-] Features

- 1.2GHz single or dual-core ARM Cortex-A9 processor with SMP and ARM Neon™ DSPs
- Full ARM Cortex processor off load with OPAL: Open Packet Acceleration Logic, a combination of accelerators, such as Packet classification and forwarding for NAT, VPN/firewall applications, QoS processor, DPI engine, security processing accelerator for IPSec/SSL processing, TCP offload engine for NAS, VoIP media processing and a general purpose accelerator for running customer power & management control processing or proprietary protocol processing.
- OPAL supports 2Gbps NAT, PPPoE and VPN at 64byte packet, with ARM cores fully offloaded
- Extensive I/O support including support for RGMII, RMII and SGMII, USB 2.0 & 3.0, PCI Gen 2, SATA, DECT, SLIC / SLAC and TDM ports
- XOR engine RAID acceleration
- Support for DDR3 with ECC support
- TrustZone and secure boot support
- Carrier grade IPv6/IPv4 packet forwarding, NAT, firewall, QoS and IPSec/SSL stack support
- NAS applications stack implementation utilizing on chip TOE storage processing accelerator
- Carrier grade VoIP supporting up to 16 complex codecs, robust echo cancellation, fax and modem support; Integrated CAT-iq compliant DECT baseband controller. VoIP applications layer stack with SIP support
- Full fledged Linux distribution with web-based GUI, Java and OSGI support
- MLC NAND flash controller with ECC

<http://www.mindspeed.com/products/cpe-processors/comcertoreg-2000>