ewd ™ embedded wireless devices inc

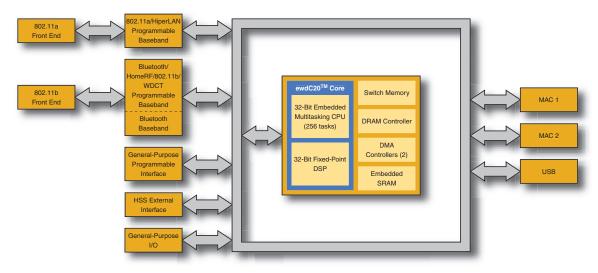*broadband wireless networking on a chip*™

e8024™
VALHALLA SERIES

The e8024™ Wireless Voice and Data Gateway Processor is a highly-integrated and optimized mixed-signal Product-on-Chip™ (PoC™) solution. The e8024 processor incorporates two programmable basebands, DRAM and DMA controllers, embedded SRAM, and the ewdC20™ core in a single-package solution. The ewdC20 core contains a powerful 32-bit DSP and a robust 32-bit multitasking microprocessor. The first programmable baseband, operating at 2.4 GHz, supports industry-leading wireless standards such as Bluetooth™, HomeRF, 802.11b, and WDCT. The second programmable baseband, operating in the 5 GHz band, supports 802.11a and HiperLAN standards. The configurable RF interface enables the e8024 processor to work with any RF solution. The e8024 processor is targeted at wireless implementations of Internet appliances, information appliances, and home networking. Wireless applications include computer peripherals, SOHO gateways, residential gateways, and web pads.

e8024 Wireless Voice and Data Gateway Processor Block Diagram

Features

- 2.7V to 3.3V operation
- ewdC20™ core
  - 40 MHz 32-bit microprocessor
  - 32-bit fixed-point DSP
  - eMOS™ Embedded Multitasking Operating System providing 256 virtual processors
- 2.4 GHz programmable high-bandwidth baseband controller
  - Bluetooth compatible
  - HomeRF compatible
  - 802.11b compatible
  - WDCT compatible
- 5 GHz programmable high-bandwidth baseband controller
  - 802.11a compatible
  - HiperLAN compatible

- General-purpose programmable interface
  - IrDA(IrLAN 1.0)
  - Serial Peripheral Interface (SPI)
  - Serial Communications Interface (SCI)
- True Response™
  - Simultaneous Flash memory read and write
- In-circuit Flash reprogrammability
- Two Ethernet ports
  - MAC 1, 10 Mbps
  - MAC 2, 10/100 Mbps
- Configurable RF interface
- PCMCIA v1.0 interface
- ISA bus compatible
- USB v1.1 interface
- Removable media interface
- NAND Flash interface

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Features (continued)

- 1 GB program space/addressing range
- 8K word DSP RAM
- 320 KB generic data/program SRAM
- Three programmable chip selects
- Eight fixed chip selects
- 56 programmable I/Os
- 8/16/32-bit selectable external data bus
- 16/24-bit timer/counter with output compare and input capture
- DMA control for SPI, basebands, and CODEC bus
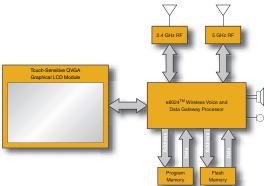- High-speed serial (HSS) interface for analog peripherals

- 16-channel ADPCM G726 compression/decompression
- 16-channel DTMF detection
- 16-channel FSK demodulation (TIA SP-4078)
- 16-channel CAS tone detection (TIA SP-4078)
- Three 8-bit ADCs
- Real-time clock (RTC)
- In-circuit debug and programming (ICDP)
- Embedded TCP/IP protocol stack

Applications

- Computer peripherals
- SOHO gateways
- Residential gateways
- Web pads

Package Availability

- 144-ball BGA (12 mm x 12 mm)

Application Example

Wireless Web Pad

TCP/IP protocol stack resides on the e8024 Wireless Processor.