Product Brief
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microelectronics group

Lucent Technologies
Bell Labs Innovations

Trident

Features

- Memory complement:
  - DSP: 16K x 16 RAM, 96K x 16 mask-programmable ROM.
  - *ARM**: 4K x 32 mask-programmable ROM, 2K x 32 RAM (byte writable).
  - Processor interface memory: 512 x 16 shared RAM.
- DSP peripherals:
  - Timer.
  - Bit input/output unit (BIO).
  - JTAG.
  - CSP interface.
  - Hardware development system (HDS).
  - 8 software patch registers.
- *ARM* peripherals:
  - External memory interface (EMI).
  - 22 address lines.
  - 4 chip select lines.
  - Programmable interrupt controller (PIC).
  - Reset/power/clock unit.
  - DMA controller.
  - Test interface controller (TIC).
  - Peripheral bridge.
  - Programmable peripheral interface (PPI).
  - Synchronous serial interface (SSI).
  - Two asynchronous communications controllers (ACCs), one with IrDA.
  - Timer.
  - Analog-to-digital converter (A/D).
  - Real-time clock (RTC).
  - One smartcard.
  - Keyboard interface.
  - One SIM multiplexed with an additional smartcard.
- Package: 196-pin FSBGA.
- Operating voltage:
  - Internal circuitry: 1.8 V ± 5% (except RTC and ADC).
  - I/O buffers, RTC, and ADC: 3.0 V ± 10%.
- On-chip, programmable PLL clock synthesizer for both DSP and *ARM* cores.
- Speed:
  - DSP: 60 MHz at minimum operating voltage.
  - *ARM*: 26 MHz at minimum operating voltage.
- Power consumption:
  - DSP: 440 µA/MHz at 1.8 V.
  - *ARM*: 250 µA/MHz at 1.8 V.
- Temperature:
  - Ambient: –40 °C— +85 °C.
  - Storage: –65 °C— +150 °C.
- Flexible power management modes for both DSP and *ARM* processors.
- Separate *IEEE*† P1149.1 test ports for DSP and *ARM* sections.

Description

Trident is a platform designed for wireless terminals. It is composed of several major blocks: a DSP block using the DSP16000 core and peripherals, a CP block using the ARM7TDMI microcontroller core and peripherals, an ICP/IDP block for communication between the DSP and the CP, and a standard set of peripherals for the DSP and *ARM*. Figure 1 contains a block diagram of the Trident.

* *ARM* is a trademark of Advanced RISC Machines Limited.
† *IEEE* is a registered trademark of The Institute of Electrical and Electronics Engineers, Inc.

Description (continued)

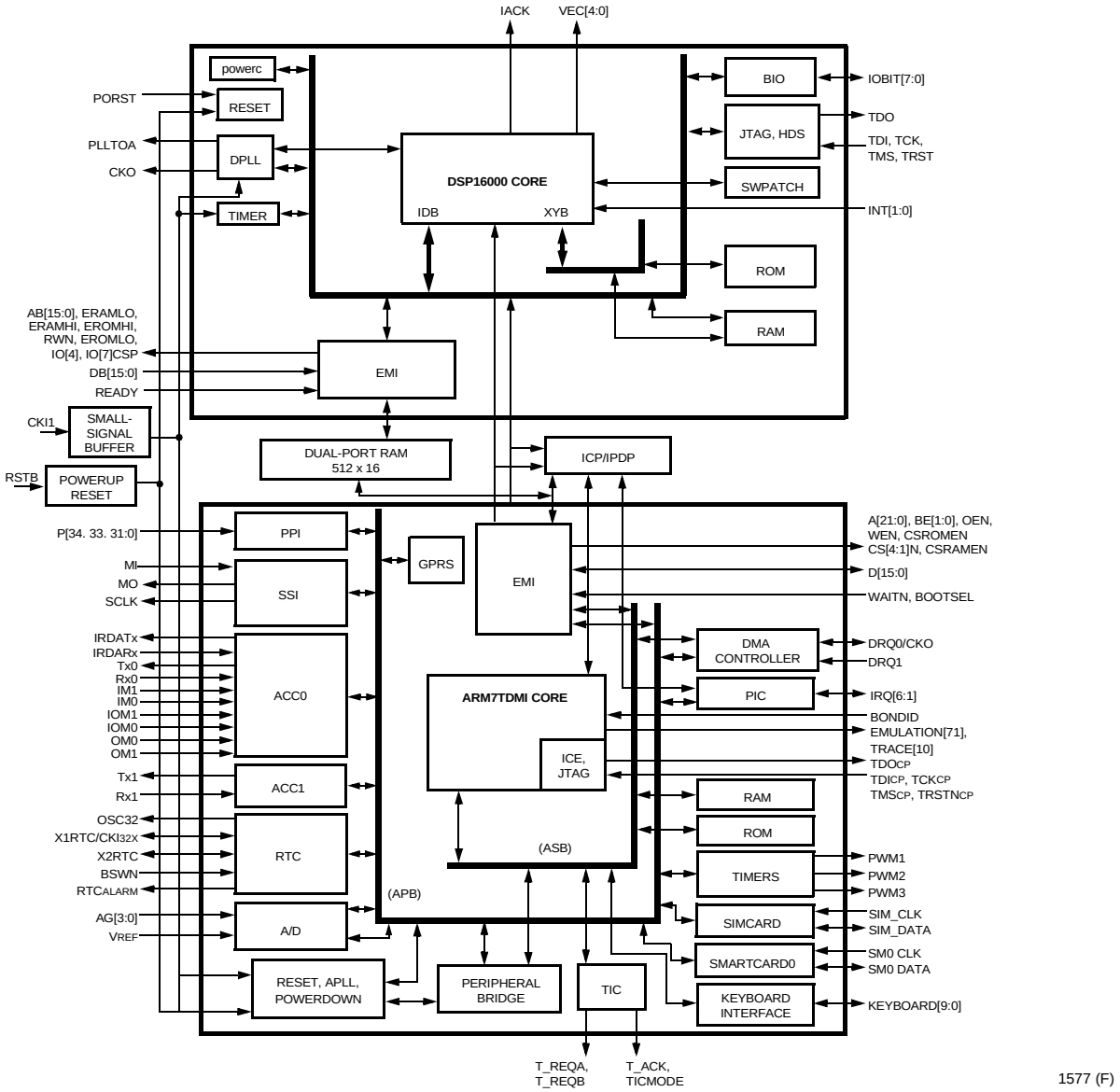

Figure 1. Trident Block Diagram

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