Intel® StrongARM® SA-1100 Multimedia Board and Companion SA-1101

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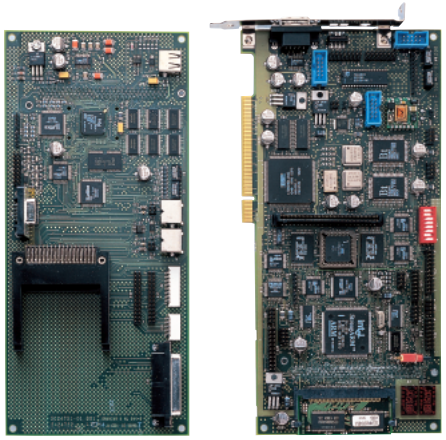
Product Overview

The SA-1100 microprocessor enables the true convergence of multimedia capabilities with the handheld and wireless applied computing market segments, including telephony and Internet appliance applications.

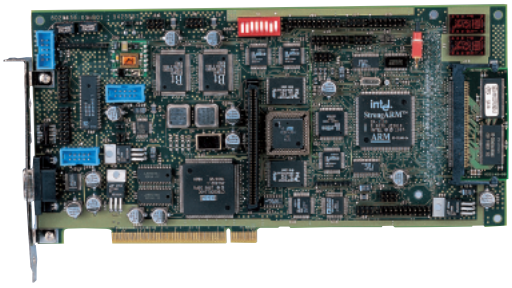
Support for a wide variety of I/O, performance optimizations, caching and a flexible memory controller enables the SA-1100 microprocessor to input, manipulate, and output media streams. The SA-1101 companion device provides additional I/O connections for devices and peripherals, including VGA graphics. These I/O functions enable developers to build complete systems with very little "glue" logic.

The SA-1100 Multimedia Development Board and the optional SA-1101 Development Board daughterboard provide a flexible general-purpose hardware and software development platform for the SA-1100 processor family, in addition to providing the basis for a multimedia reference design. The multimedia reference design can include the configurable boards, drivers, operating system, and application software for video I/O, audio I/O, telephony, Web access, e-mail, voice-over-IP video conferencing and related applications.

Both the Multimedia Development Board and companion device daughtercard are also available as subsets of development kits.



SA-1100 Multimedia Board with Optional SA-1101 Daughterboard



SA-1100 Multimedia Board

Product Highlights

The SA-1100 Multimedia Development Board at-a-glance:

The SA-1100 Multimedia Development Board provides a comprehensive breadboard development environment with the following features:

- PCI add-in card form factor designed to support quick time-to-market designs
- SA-1100 microprocessor with programmable clock speeds up to 220 MHz. The 32-bit RISC microprocessor features a 16 KB instruction cache, an 8 KB write-back data cache, a minicache, a write buffer, a read buffer, and a memory-management unit (MMU) combined in a single device
- The main DRAM used in the SA-1100 multimedia development board design is a 72-pin 50 ns and 60 ns EDO DRAM SODIMM. Memory boards of 4 MB, 8 MB, 16 MB and 32 MB are available
- Flash memory, including switchable boot flash and application flash devices
- Multiple probe points for access to key signals
- Extremely flexible circuit routing employing complex programmable logic devices (CPLDs) that allow logic to be reconfigured at run time
- Two connectors for mounting daughter cards, including one for the SA-1101 daughterboard
- An example integration of video, audio, POTS communication, flash, and DSP co-processor on-board
- Easy integration of multiple I/O devices

Flexible Flash Memory

The flash memory in the SA-1100 Multimedia Development Board provides non-volatile program storage for the bootable micro-kernel and applications. The board includes two types of flash memory: boot flash and application flash.

- The boot flash bank is a 64 KBx16 (128 KB) flash device designed for storage of initial power-up boot code as well as micro-kernel code. The device is socketed to simplify debugging of hardware and firmware and can be flashed either of two ways: in the SA-1100 Multimedia Development Board or on a dedicated ROM blaster before it is plugged into the socket.
- The application flash bank is a 4 MB block of Intel flash memory for storage of user applications.

For added flexibility, a switch on the SA-1100 Multimedia Development Board allows developers to swap the addressing and functions of the two flash banks. This enables the boot flash device to be flashed while the application flash bank functions as the boot flash bank. Developers can use this capability to flash and debug boot code without a dedicated ROM emulator or flash ROM programmer. Both the boot flash and the application flash can be written using the Flash Management Utility (FMU).

Software

The SA-1100 Multimedia Board supports a robust software environment:

- Real-time operating systems include Nucleus+, Chorus OS, Inferno, WinCE, OS-9, ThreadX, µCOS, pSOS, C Executive, AMX, Linux, MQX/Kernel, EPOC32, Supertask!, VXWorks, JavaOS, RTXC, and OSE
- Software tools are available from ARM®, Cygnus, Green Hills, ISI, Metaware, Microsoft, Microware, Wind River, and others

CPLDs for Fast Time-to-Market Designs

The CPLDs can be programmed to provide a variety of hardware functions and are pre-programmed to support sample designs. The in-circuit programmability of the CPLDs enables programming at run-time to support a variety of hardware needs, enabling system developers to tailor the SA-1100 multimedia design to their specific application. The ability to quickly port a new hardware application to an existing well-supported platform allows rapid deployment of software development platforms for end-user applications.

The Optional SA-1101 Development Board

This is a single-board I/O expander for the SA-1100 development board with the form factor of a daughter card. The SA-1101 development board adds these features:

- Multiple probe points for flexible access to key signals
- Expanded I/O connections for video, PCMCIA card connector, USB, DSUB and 1284/parallel ports and PS/2 connections
- Flexible circuit routing featuring programmable CPLDs, with sample routing for common functions
- A hardware and software development environment for PCMCIA interfaces, IEEE 1284 and matrix keyboards
- Software: including all of the system components necessary for a Windows CE* sub-notebook system development platform with two independent video heads

Multimedia Reference Design

The Multimedia Reference Design demonstrates low-cost designs that can be used in the following applications:

- Video phone with optional Web and e-mail access
- Standard digital television (SDTV) engine with capabilities such as PIP, OSD, video phone, and Web access
- Voice-over-IP applications
- Security monitoring/remote security devices
- Electronic cameras
- Wireless gateways
- Speech recognition
- Tapeless recorder

SA-1100 Multimedia Development Kit

The SA-1100 Multimedia Development Kit is shipped with the following items:

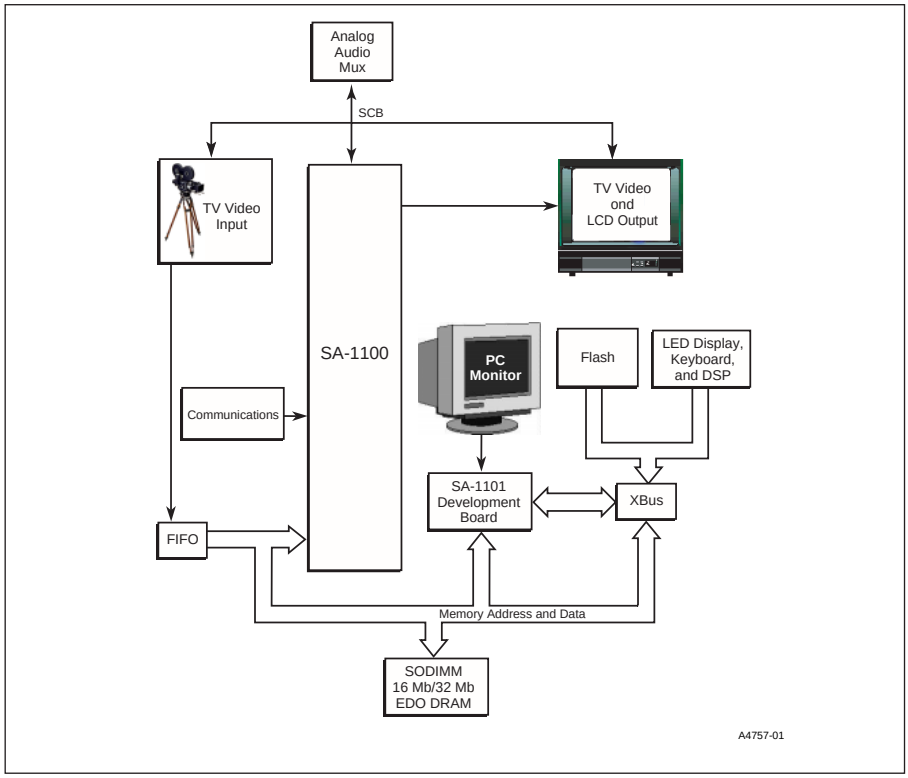
- Two identical adapter cables fitted with a male RCA jack and a two-pin header receiver
- A 16-pad keypad
- A fully-populated SA-1100 multimedia development board with pre-programmed CPLDs
- A SODIMM double-sided module containing 16 MB or 32 MB of DRAM memory, already pre-installed
- Null-modem cable (9 pin D-Sub female to 9 pin D-Sub female)
- *StrongARM® SA-1100 Multimedia Development Board with Companion SA-1101 Development Board User's Guide* (this document)
- *StrongARM SA-1100 Microprocessor Specification Update*
- *SA-1100 Microprocessor Technical Reference Manual*
- *README.TXT*

SA-1101 Development Kit

The optional SA-1100 Multimedia Development Board is shipped with the following items:

- A 64-key keyboard
- A fully-populated SA-1101 development board with pre-programmed CPLDs
- *StrongARM SA-1101 Microprocessor Technical Reference Manual*

A4757-01 Block Diagram



To order now

Contact an authorized Intel distributor for complete ordering details.

- To order the SA-1100 Multimedia Development Board, specify part number DE-1S110-OB
- To order the SA-1101 Development Board, specify part number DE-1S110-OC

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