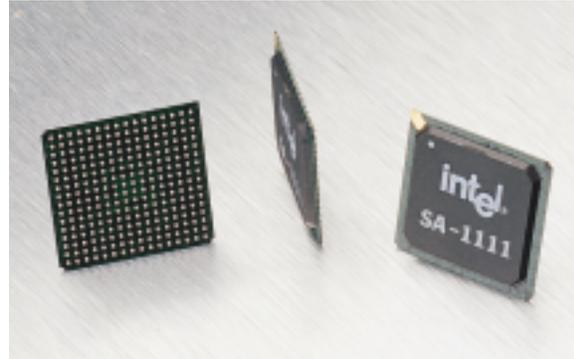


## Intel® SA-1111 Companion Chip - Integrated Technology for Full-Featured, Versatile Designs

### PRODUCT HIGHLIGHTS

- Complements the Intel® StrongARM® SA-1110 processor's leadership performance/ power attributes with advanced I/O capabilities
- Provides a highly integrated solution for emerging handheld applications
- Provides design flexibility through a wide range of full-function interfaces
- USB (Host) Rev. 1.1 compliant and supports industry-standard I/O interfaces
- Supported by a rich suite of Intel and third-party hardware and software development tools



### PRODUCT OVERVIEW

The Intel® SA-1111 companion chip, a highly integrated and power-efficient component, complements the leadership performance of the Intel SA-1110 processor by providing key I/O capabilities designed for emerging handheld applications. The SA-1111 brings a new level of integration to portable applied computing devices and enables key attributes such as reduced component count, low power dissipation and high performance.

The Intel SA-1111 provides a USB host controller, direct connection to AC-link and I<sup>2</sup>S audio codecs, buffering for one PCMCIA slot and one CF slot, and multiple additional I/O interfaces. A dedicated memory controller can reduce bandwidth demands, to maximize overall system performance. This rich suite of features, combined with a robust development environment, enables manufacturers to bring competitive handheld products to market quickly.

### SUPPORT FOR USB DEVICES

Featuring a Universal Serial Bus (USB) host controller, the Intel SA-1111 companion chip enables integration with USB-compatible devices and offloads the Intel SA-1110 processor through DMA data transfers. The SA-1111 is compatible with the Open Host Controller Interface (OHCI), Windows 95 USB, and USB Rev 1.1. USB-compliant devices can “plug and play” with handheld products that incorporate the SA-1110 processor and SA-1111 companion chip.

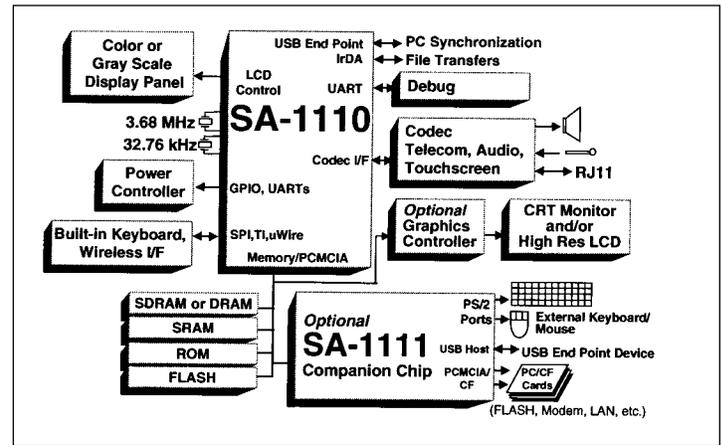
### INTEGRATED I/O INTERFACES PROVIDE SCALABLE, FLEXIBLE HANDHELD DESIGNS

To provide maximum design flexibility, reduce design time and lower cost, the Intel SA-1111 companion chip integrates a broad spectrum of I/O interfaces. It incorporates two PS/2 ports, an AC-link, I<sup>2</sup>S and L3 serial ports for audio, an SSP serial data port, two PWM outputs, one

PCMCIA interface, one Compact Flash Interface, and general-purpose I/O (GPIO) pins.

The Intel SA-1111 companion chip's SSP serial data port supports National Microwire\*, TI\* Synchronous Serial Protocol (SSP), and Motorola\* Serial Peripheral Interface (SPI) serial protocols, enabling designs incorporating a wide selection of components that require serial communication. PCMCIA and Compact Flash control logic and buffers are integrated within the SA-1111. This eliminates up to 12 external devices, providing a highly integrated, cost effective and low-power solution for PC companions and vertical handheld applications. Both the USB controller and the serial audio controller make use of DMA to offload the Intel SA-1110 microprocessor, freeing compute resources and bandwidth.

The advanced interfaces and features of the Intel SA-1111 companion chip offer broad flexibility to support multiple cost-effective handheld configurations while minimizing time-to-market constraints. The SA-1111 is packaged in a 256-pin mBGA.



**SA-1110/SA-1111 System Example**

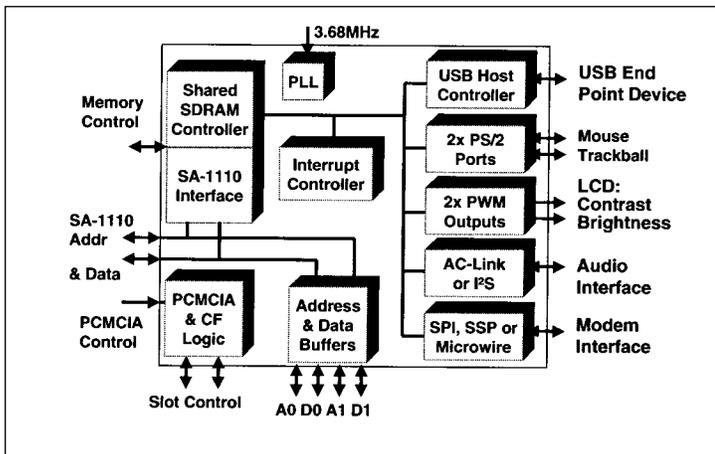
**LOW-POWER CONSUMPTION MINIMIZES POWER REQUIREMENTS**

The selective clock-gating feature and three power-down modes (idle, doze, and sleep) of the Intel SA-1111 minimize system power requirements. The SA-1111 can power down individual functional blocks that are not in use and power them up quickly when they are needed.

**DEVELOPMENT TOOLS SPEED TIME-TO-MARKET**

Developers have access to a large library of ARM\*-compatible applications and tools plus an abundant set of operating systems and tool chains, including real-time and interactive development systems. Developers can use the Intel SA-1110 hardware developer's kit and evaluation platform as an effective tool to develop and test software, build libraries of new feature-rich, industry leading applications for StrongARM®-based products and reduce overall time-to-market.

Samples of the Intel SA-1110 processor are planned to be available in June, while samples of the SA-1111 companion chip are planned to be available in July. Production of both is scheduled for the end of the third quarter of 1999. In addition, Intel will offer the SA-1110 hardware developer's kit and evaluation platform that supports the Intel SA-1111 companion chip.



**SA-1111 Block Diagram**

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