

Digital Media Development Tools

for Simplified Product Design

Product Overview

The AMD Alchemy™ DBAul200™ development board kit is an all-inclusive hardware and software tool suite that enables product developers to quickly and easily design and test next-generation digital media devices. The kit includes a complete set of features for the development and testing of operating system and application software for products based on the low-power, high-performance digital media capabilities of the AMD Alchemy Aul200™ processor.

The DBAul200 development board kit is a logical extension of the capabilities of the Aul200 processor. This System-on-Chip (SoC) provides on-chip decoding of virtually all digital media formats, including MPEG1, 2, and 4; DivX 3, 4, and 5; H.263; and WMV9 video at DI resolution (720 x 480) on handheld media-rich devices, without the need for transcoding.

The development board is designed to optimize the strengths of the AMD Alchemy Aul200 processor, such as its unified memory architecture, descriptor-based DDMA engine, and broad device support.

Hardware

The AMD Alchemy DBAul200 development board kit is delivered complete and is configured and ready to run all leading development software programs. The development board kit is designed around the Aul200 processor and also includes DDR2 and Flash memory devices, all other associated semiconductors, and connectivity support for all peripheral devices.

The tool also features programmable serial controllers and power supplies. The kit is delivered with a 1.3-megapixel digital camera, and an EJTAG header supports monitoring and debugging and provides full-board reset.

Software and Documentation

The DBAul200 development board kit helps designers become productive quickly with an included Quick Start CD that contains a WinCE demo and media codecs, plus the Linux operating system kernel and Linux development tools.

The development tool also includes Personal Media Player (PMP) and Digital Media Adapter (DMA) applications that can help to produce enhanced development cost savings. In addition to a Quick Start Guide, the CD also contains processor design files, application notes, the YAMON monitoring and debug assist software, and data sheets for each major board component.

Development Board Features

Processor Features:

- AMD Alchemy Aul200 processor – directly soldered on board, not socketed
- VDDI = 1.2V (switchable from 0.925V-1.275V)
- MIPS32-based™ core that provides a simple programming model and well-established toolchain
- Hardware Media Acceleration Engine (MAE) that autonomously performs the most demanding parts of video decoding, and also provides scaling, filtering, and color space conversion for any display data
- 32-bit aRGB LCD controller
- Camera Interface Module for glueless interfacing with CCD/CMOS sensors and analog TV devices
- AES encryption/decryption allows hardware acceleration for content Digital Rights Management (DRM)

Memory:

- DRAM: 2 ranks of 512Mbit DDR2-533 devices (256MB total)
- NOR Flash: 2 x 256Mbit MirrorBit™ NOR Flash (64MB total), swap-boot between pairs
- NAND Flash: 1 x 8 (128MB or 256MB total) device is restricted to CS[1]#, and is not bootable

Expansion:

- PCMCIA: Dual Hot-Swappable slots
- DaughterCard Connector
- Memory-mapped Registers

Onboard Peripherals:

USB: Two USB ports for USB 2.0 Host and Device Controller that supports OTG (on-the-go) protocols:

- 1 Host + 1 Device, or
- 1 OTG + 1 Host, or
- 2 Hosts
- HS, FS, and LS support for both host and device

IDE: PIO Mode with Multiword DMA; standard IDE connector

AMD Alchemy™ DBAul200™ Development Board Kit

Memory-mapped Ethernet MAC/PHY: SMSC LAN91C111

UARTS: Two UARTS

- U0 is Rx_D/Tx_D only,
- U1 with full RS-232 handshake (from GPIO[[4:9]])

SD-Card: 1 connector on SD0 Port

Camera Interface Module: 1 2x16 stake-pin connector for included OmniVision OV9640FBG camera (1.3Mpixel)

LCD Interface: 3 output options

- Generic Connector
- CRT DAC: Converts LCD signals to CRT signals output to VGA connector
- LVDS Transmitter output to backlight inverter connector

TV Interface:

Focus Enhancement FS453 PC > TV video scan converter provides NTSC/PAL S-Video out; with adapter cables can support composite, component (720p), SCART

Programmable Serial Controllers:

2 Multiplexed pairs:

PSCI Pair (Only 1 of these two may be operational at any given time)

- **AC'97:** SigmaTel STAC9752T with stereo mini-plug jacks for 1 line-in, 1 headphone out, and 1 microphone
- **I2S:** Wolfson WM8731 with stereo mini-plug jacks for 1 line-in, 1 headphone out, and 1 microphone

PSC0 Pair (Only 1 of these two may be operational at any given time)

- **SMBus:** Temp/Voltage Monitor and Serial EPROM
- **SPI:** Temp Monitor and AMD SPI-Flash

EJTAG 2 x 7 pin connector to Aul200 processor; able to reset the entire board from EJTAG

Power:

- Software power-off capable
- System power-on from Aul200 WAKE# signal
- Coin cell battery on VDDZ (Real-Time Clock); populated, and spare battery is included
- PC Power Connector (for attached PC devices such as IDE drive)
- VDDI switch selectable (0.925V – 1.275V); default is 1.2V
- Power-up/power-down sequencing circuit (VDDX, VDDY)
- Four-voltage supervisor monitor/reset circuit
- Board Software Reset
- Single +12V DC external power supply
- Onboard high-efficiency switch-made regulators to create these voltages: VDDI, +1.8V, +2.5V, +3.3V, and +5V

Kit Contents:

- AMD Alchemy™ DBAul200™ development board
- Power supply and cord
- OmniVision Model OV9640FBG 1.3 MP camera
- Serial cable for YAMON
- Replacement battery for RTC
- Documentation/Demo CD
 - Quick Start Guide, Design files for DBAul200 development board, data sheets for major silicon components, application notes, etc.
 - YAMON monitor/debugger software
 - WinCE demo – boot loader and nk.bin image
 - Linux – kernel and tools, device drivers, AMD media player software
 - Personal Media Player and Digital Media Adapter applications

About AMD

AMD (NYSE:AMD) designs and produces innovative microprocessors, Flash memory devices and low-power processor solutions for the computer, communications and

consumer electronics industries. AMD is dedicated to delivering standards-based, customer-focused solutions for technology users, ranging from enterprises and governments to individual consumers.

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