



# Multimedia Platform Controller

## MQ-1168

The MQ-1168 is the second-generation product in the MQ-11xx series from MediaQ™. This device provides rich video and audio functions in addition to high performance graphics and high-speed peripherals enabling mobile device OEMs to deliver true multimedia experience. The MQ-1168 also extends the storage and I/O mechanism by supporting the popular Secure Digital I/O interface.

The MQ-1168 supports a flexible CPU interface, integrates a 64-bit 2D graphics engine, Stretch BLT engine with color space converter for video processing, LCD display interface, dedicated Video Input Module, Secure Digital I/O interface (SDIO), Serial Peripheral Interface (SPI), AC-97/I<sup>2</sup>S audio and USB controllers (function and host) on a single chip. This device provides OEMs the flexibility to create products based on performance and power consumption requirements and is ideally suited for mobile, networked platforms such as Personal Digital Assistants, Smart Phone and Mobile Appliances.

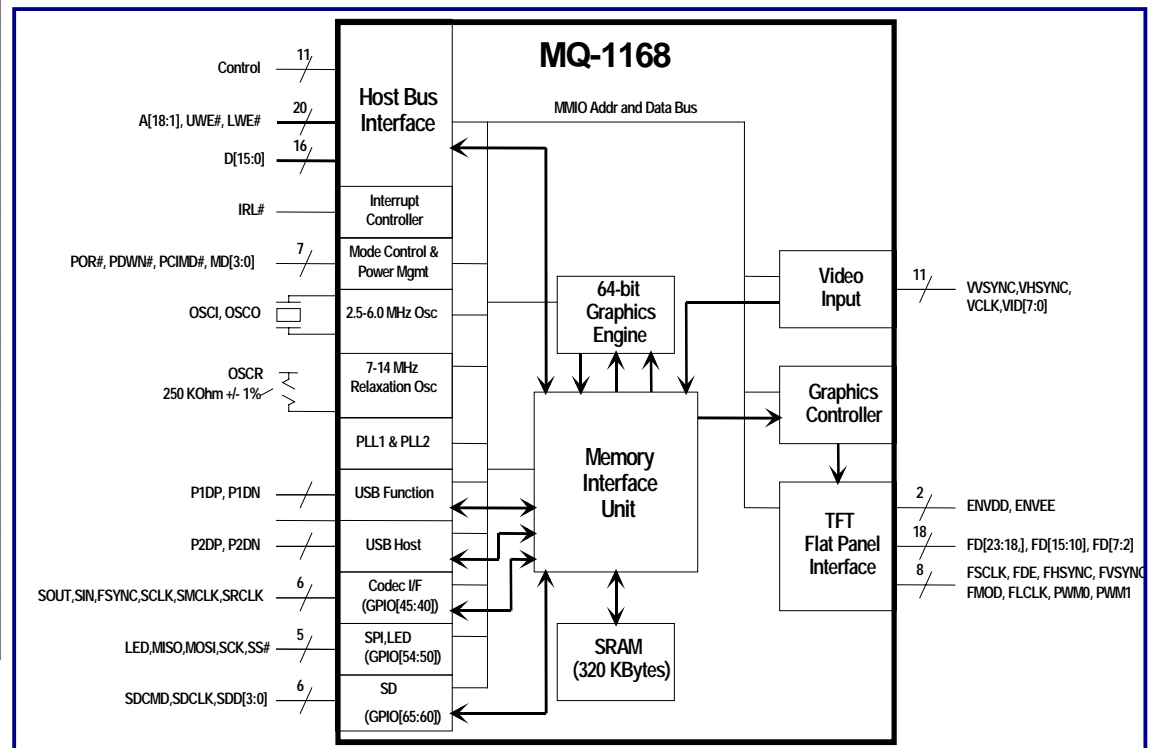
The MQ-1168 has a 64-bit wide internal bus to 320KB of embedded memory providing scalable bandwidth of up to 384MB/sec. The embedded SRAM provides on-chip storage for frame buffer, video buffers and transactional buffers for USB, SD and Audio. Fine-grained power management is made possible by MediaQ's proprietary DynamiQ™ Power Management system, reducing power consumption in handheld computing platforms.

The MQ-1168 provides hardware assist for video playback applications on mobile devices. The video stream can be input from the CPU host interface or from the dedicated CCIR656 compliant Video Input port. The MQ-1168 provides hardware based color space conversion and image scaling, with the YUV video buffers having space allocated in the embedded SRAM. This feature provides high quality video playback functionality while alleviating compute and memory access overheads from the host CPU.

To speed system integration, the MQ-1168 integrates key interface functions with direct support for a wide range of microprocessor architectures. The CPU interface of the MQ-1168 directly supports custom interfaces to the Intel StrongARM series, the Motorola Dragonball series, the Hitachi SH-3 and SH-4 and the NEC VR-4100 family.

The MQ-1168 is available in 144-pin BGA package with full driver support for popular operating systems.

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MQ-1168 Device Block Diagram

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## Key Features

### Multiple Microprocessor Support

- Intel SA-1110 and next generation XScale Micro architecture based CPUs
- Hitachi SH-7750 and SH-7709
- Motorola DragonBall
- NEC VR-41xx
- PCI v2.1 with clockrun support

### Integrated 320 KBytes of SRAM

- 384 MB/s throughput
- Frame, Transactional and Video buffers

### Display Support

- Resolutions up to 320 x 320 (16 Bpp)
- 640 x 240 (16 Bpp) and 640 x 480 (8 Bpp) without Video streaming supported
- S-STN and TFT Panels (Color and Monochrome)
- Built-in Timing Control supports direct interface to a variety of LCDs
- 64 x 64 pixel Hardware Cursor
- Hardware Rotation (90, 180 and 270 degrees)

### DynamiQ™ Power Management

- Efficient Gated clock Design to conserve power in active and inactive modules
- Selective Power down on individual modules
- Software and Hardware supported power down modes

### 2D Graphics Acceleration Engine

- Rectangular source-copy block transfers
- Hardware ROPs and Hardware line draw
- Monochrome to color conversion

### Video Input Module

- CCIR656 Compliant 8-bit interface
- Hardware Color Space Conversion and Image Scaling
- Front end Decimation engine to scale down large resolution input images

### Peripheral Support

- USB 1.1 Device Interface
- USB 1.1 Host Interface - OHCI Compatible
- Serial Peripheral Interface (SPI)
- AC-97/I<sup>2</sup>S Audio Interface
- Secure Digital IO Interface (SDIO) for storage and expansion

### Miscellaneous

- 2 PLLs to generate 48 MHz internal clock and Audio Codec Clock
- Relaxation Oscillator to reduce power consumption in idle mode

### OS Support

- Palm 4.0, PocketPC and Windows CE

### Package Dimensions

- 144-pin BGA - 10mm x 10mm with 0.8mm pitch

## MQ-1168

### Regional Sales Offices

#### Europe

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