



MediaQ Multimedia Platform Controller

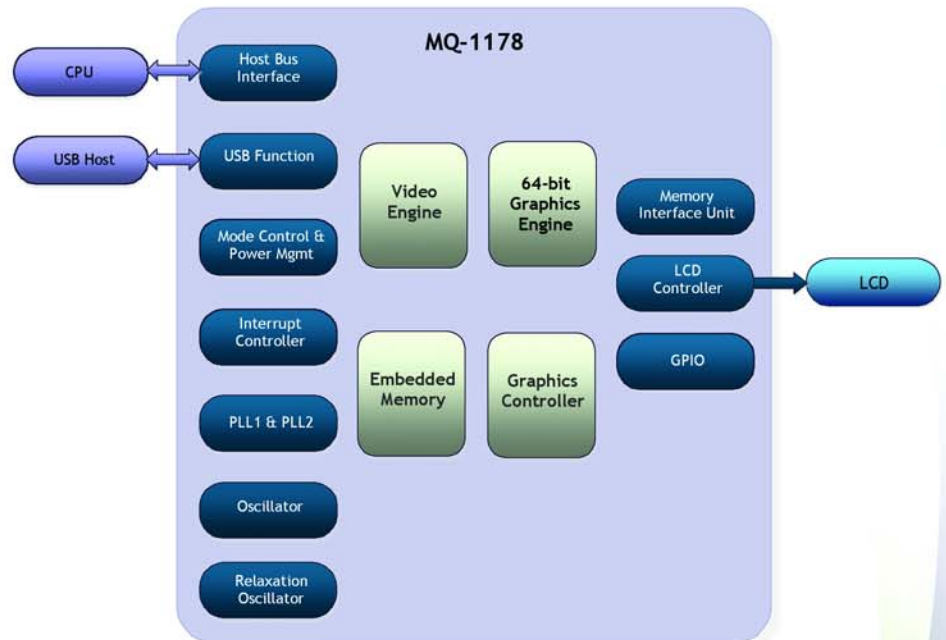
MQ-1178

The MQ-1178 is a high performance/low power multimedia platform controller and is part of the MQ-1188 controller family from the MQ-1000 series of devices from NVIDIA®. The MQ-1178 provides rich video and audio functions in addition to high performance graphics and high speed peripherals, enabling mobile device OEMs to deliver a true multimedia experience. The Host interface has been expanded to include support for CPUs that do not have RDY (Ready) signal. This flexibility allows seamless interface to popular mobile phone Baseband Processors.

The MQ-1178 supports a flexible CPU interface, integrates a 64-bit 2D graphics engine, back-end video processing engine, LCD display interface, and USB device 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 Phones and other Mobile Appliances.

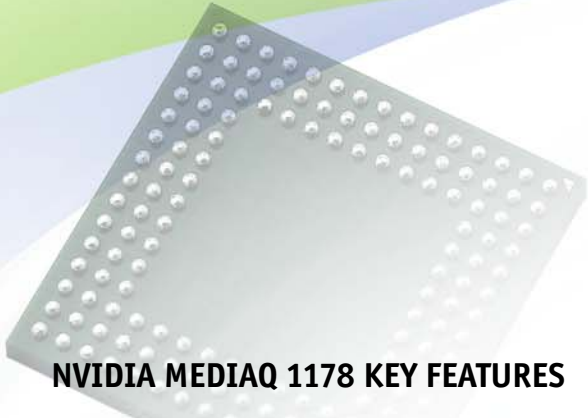
The MQ-1178 has a 64-bit wide internal bus to 256 Kbytes of embedded memory providing scalable bandwidth of up to 528 Mbytes/sec. The embedded SRAM provides on-chip storage for frame buffer, video buffers and transactional buffers for USB device.

Fine-grained power management is made possible by the proprietary NVIDIA® DynamiQ™ power saving feature, reducing power consumption in handheld devices.



The MQ-1178 provides hardware assist for video playback applications on mobile devices. The video stream comes from the CPU host interface. The MQ-1178 provides hardware based color 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. Enough flexibility is provided for video playback, allowing OEMs to differentiate their video offerings.

To speed system integration, the MQ-1178 integrates key interface functions with direct support for a wide range of microprocessor architectures. The CPU interface of the MQ-1178 directly supports custom interfaces to the Intel StrongARM and XScale series, the Motorola Dragonball series, the Hitachi SH-3 and SH-4 and the NEC VR-41xx family, and fixed cycle CPUs.



NVIDIA MEDIAQ 1178 KEY FEATURES

MULTIPLE MICROPROCESSOR SUPPORT

- CPUs with fixed cycle read/write
- Intel SA-1110 and PXA2x0
- Hitachi SH-7750 and SH-7709
- Motorola DragonBall MC68xZ328
- NEC VR-41xx
- PCI version 2.1

INTEGRATED 256 KB OF SRAM

- 528 MB/s throughput
- Frame buffer and transactional buffer

DISPLAY SUPPORT

- Resolutions up to 320 x 320 (16 bpp) or 640 x 240 and 320 x 480 (8bpp)
- 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

FULL 2D GRAPHICS ACCELERATION

- Rectangular source-copy block transfers
- Hardware ROPs and Bresenham line draw
- Pattern and Area fill
- Monochrome to Color conversion
- Clipping and Transparency

PERIPHERAL SUPPORT

- USB Device Interface

ADDITIONAL FEATURES

- 2 PLLs
- Relaxation Oscillator to reduce power consumption in idle mode
- I/O voltage: 2.5 V – 3.3 V; Core voltage: 1.5 V

PACKAGE DIMENSIONS

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

