SiliconMotion

SM768

Falcon High Performance 4K Graphics Processor

SM768 is high performance graphics processor which provides dual display channels and supports multiple output interfaces, including HDMI, DisplayPort, VGA, LVDS and digital interfaces. SM768 has 128-bit graphics engine to accelerate graphics displays including front-end color space conversion and back-end YUV color space conversion with scaling. SM768 also supports H.264/MJPEG hardware video decoding. There's also an option to embed 256MB DDR3 memory into a small 19x19mm package.

SM768 connects to host via USB 3.0 SuperSpeed device interface or PCIe 2.0 interface and can support different applications, ex: USB display, Thin/Zero client, Signage and Embedded displays. SM768 has an internal USB 2.0 Host/Hub for connecting peripherals such as keyboard, mouse, network and storage devices. SM768 supports resolution up to 4K UHD (3840x2160@30p) or full HD (1920x1080@60p).

APPLICATIONS

- USB Display Adapter/Monitor
- Universal Docking Station
- Thin/Zero Client
- Digital Signage/POS

- Factory Automation/IPC
- Gaming Machine
- Medical Device
- Small Form Factor, Low Power Embedded Graphics

System Interfaces

- USB 3.0 Device Interface - Connect to USB Host
- PCI-Express Gen2 x1/x2 lane device slave Interface
- USB 2.0 Hub with Four (4) Port for peripherals: Keyboard/Mouse/Network/Camera/Storage
- Two ZV ports to capture incoming video from cameras or other devices

Memory Support

- Supports 256MB internal DDR3 memory or up to 1GB external DDR 2/3 memory
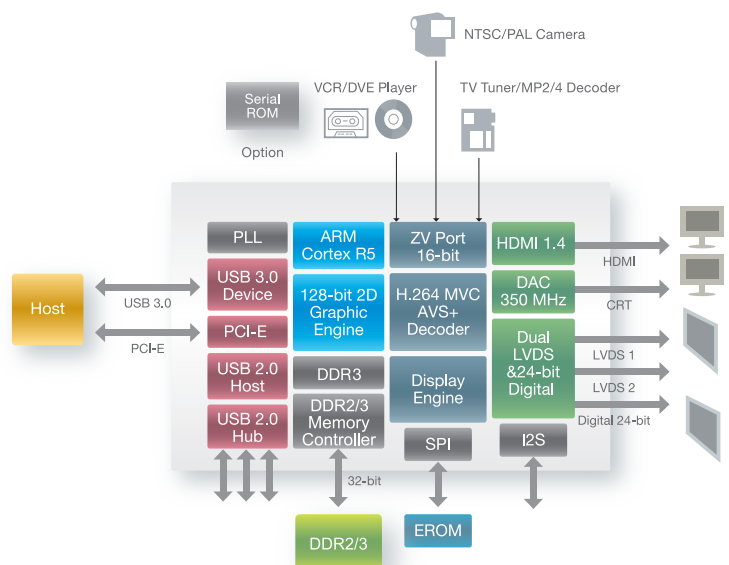- Use embedded memory for power efficient and small form factor applications

Display Features

- HW Video decoder supports: H.264 MVC/AVS+, H.263, MPEG-4, MPEG2, M-JPEG, RealVideo, VC-1, & Theora
- Support Dual idependent channels up to 4K UHD - 3840x2160 @ 30p or Full HD - 1920x1080 @ 60p
- 128-bit high performance graphics engine. Hardware acceleration of Bitblt, Stretch Blt, Line Draw, Polygon Fill, full ROP3
- Four Display layer support per channel: Graphics, Hardware cursor, Video overlay and Alpha layers.
- Content Adaptive Technology (CAT) to accelerate USB display by adaptive compression algorithms.
- Embedded 1x HDMI v1.4 transmitter, output supports up to 4K UHD resolution.
- Dual 24-bit LVDS channels for direct LCD panel connections – Two separate, or single high-res panel
- Dual 24-bit digital video interface to connect with transmitters with various display output
- Dual 8-bit DACs with pixel rate up to 350 MHz
- Resolution support: VGA (640x480), SVGA, XGA, SXGA, WXGA, ED, WXGA+, WSXGA+, Full HD (1920x1080), WUXGA, QWXGA, WQXGA (2560x1600) and 4k UHD (3840x2160)
- Modes: Extended Desktop Single & Dual View, Clone, Portrait/Landscape modes

Software Support

- Windows operating systems: WinXP, 32-bit or 64-bit Windows 7, 8, 10 and Windows Server 2008/2012, Windows Multipoint Server (WMS)
- Linux OS (Ubuntu, Red Hat, SUSE, etc)
- Linux Userful Multi-Seat Server 6.x/7.1 support including Virtualization
- MAC OS X
- Media playback: SMI Media Player, Windows Media Player, Win DVD, PowerDVD, RealPlayer 11 and etc.

BLOCK DIAGRAM

SPECIFICATION

Graphics Engine	128-bit 2D Engine w/ Video Decoder
Host Interface	USB 3.0
	PCIe 2.0 x1 or x2
Int. Memory	256MB DDR3 (option)
Ext. Memory	1GB DDR2/3 (max)
Resolution	Up to 4K UHD (3840x2160)
Operation Temperature	Commercial (0°C to +70°C)
	Industrial (-40°C to +85°C)
Package	425-pin BGA MCM (19mm x 19mm)