Multimedia Solution

MagusCore™ system solution with Linux open platform enables cost-effective and high-quality online playback for advanced display systems such as projectors, and high-definition video recording for products such as PVR cameras.

SSD1938 integrates many advanced image processing features for projector products, and the dual LCD systems are designed for very low power consumption as well as display systems requiring a secondary display for two-user interface. SSD1938, with stacked mobile DDR, allows more power efficient and compact portable design.

MagusCore™ solution supports a number of USB-connected functions, and focused product applications which allow instant sharing of user contents or instant access of Internet contents, will bring wireless multimedia solutions in silicon.

Multimedia Processor

The MagusCore™ family of System-on-Chip (SoC) solutions from Solomon Systech is an application processor platform designed for portable multimedia applications. The multimedia processor based on dual-core architecture, has an integrated 8060 PCI Express® core, with high-efficiency multimedia core, DSP and VPU, for high performance multimedia applications. The SoC supports a wide range of multimedia features including MPEG4, H.264 for playback and recording applications up to 1080p resolution.

MagusCore™ SoC enables very cost competitive designs using integrated peripherals and memory interfaces such as XILINX Ethernet MAC, IEEE 1394, Ethernet-On-Chip, and 4k to 64-bit ECC capabilities. Its integrated power management mechanism, frequency scaling, graphics accelerators engines, content based or system based energy saving features will benefit very low powercord devices and make products eco-friendly.

Applications

SSD1930 offers higher CPU and DSP power for more demanding multimedia applications, such as MP4 players, palm-top computers, etc.

SSD1931 is designed for OEM embedded Linux-based media player/MP4 and fits into a small package which is ideal for battery powered small form factor multimedia products such as PVR cameras, portable media players, DVB-SETI, etc.

Key Features

• Operating system: Linux 2.6.
• System solution design allows users to add advanced projectors to the video output of their products.
• Supports JPEG, BMP and PNG.
• Supports H.264, MPEG4, MPEG2, FLV, MJPEG, MKV video playback.
• Supports MP3, AAC, WMA, WAV, FLAC audio playback.
• Supports multi-points capacitive touch panel control.
• Supports 32Mb RAM for project buffer.
• Supports input from JPEG, BMP, PNG, GIF, JPG, TIF files.
• Supports USB streaming – PC performance projection via USB 2.0 connection.

SSD1932 is targeted for high resolution and high performance Android-based home entertainment products including smart TV and smart projects, which will take the consumers closer to the cloud computing space.

SSD1933 is embedded with ARM Cortex-A15 based multimedia IDE HDMI and fits into a small package which is ideal for battery powered small form factor multimedia products such as PVR cameras, portable media players, DVB-S2, etc.

SSD1936 is a high performance ARM11-based derivered software package for true HD video player; display processing unit for complex user interface design and H.264 display hardware for 3D projector products. The Tegra rendering engine in SSD1936 is also prepared for video conferencing application. They are ideal for products like pico-projectors, p-vide projectors, multimedia projectors, 3D projector applications, Android PMP, smart medical devices, smartphones, media boxes, remote controls, etc.

The SSD1939 System-on-Chip is targeted for high resolution and high performance Android-based home entertainment products including smart TV and smart projects, which will take the consumers closer to the cloud computing space.

Key Features

• Operating system: Android 2.3.
• Internal 320/480 and 720/1280 DVI-D interface.
• Native display resolution: WVGA 800x480 and XGA 1024x768.
• Supports high-definition video playback from SSD1930.
• Supports multiple display outputs (Dual DVI) for projectors.
• Supports USB 1.1 interface.
• Supports multiple USB 1.0 and 2.0 interfaces.
• Supports low power consumption.
• Provides high-definition video playback from SSD1930.
• Supports enhanced MPEG4, H.264, MJPEG, FLV playback.
• Supports JPEG, BMP and PNG.
• Supports H.264, MPEG4, MPEG2, FLV, MJPEG, MKV video playback.
• Supports MP3, AAC, WMA, WAV, FLAC audio playback.
• Supports USB WiFi or SDIO WiFi.
• Supports Ethernet connectivity.
• Supports microSD / T-Flash memory card up to 16GB.
• Supports 3.2Mpixel or VGA (640x480) CMOS camera sensor.
• Supports Enhanced ‘Magic’ graphic scalar for different video resolutions.
• Supports JPEG, BMP and PNG.
• Supports 3D projection for complex user interface design and H.264 display hardware for 3D projector applications. They are ideal for products like pico-projectors, p-vide projectors, multimedia projectors, 3D projector applications, Android PMP, smart medical devices, smartphones, media boxes, remote controls, etc.

Applications

Multimedia Solution

Multimedia Solution

Total Solutions for Display Systems
MagusCore™ SAC provides high quality multimedia-stacked and recording functions for various display units, low cost system design by higher integration of value-added multimedia subsystems, and high performance multimedia functions resulting in high-end multimedia processing engines. The SAC enables OEMs to deliver cost competitive system solutions and enables cost-friendly products.

**Key Features**
- High Performance ARM Core: ARM9, ARM9, ARM11
- Mobile Multimedia Core: • 420MHz DDR2, • 200MHz DDR2
- High Quality Multimedia: • Quad channel up to 1280 video encoder, • 24-bit graphics engine for 3D acceleration
- Connect-adaptive backlight control
- "Sleep mode" – with low wake-up control

**System Connectivity (Wire and Wireless Devices)**
- Connectivity with HDMI, analogue front-end decoder, Ethernet, IP
- Connectivity with Wi-Fi, UFS, Bluetooth, RF/HF, 2G/3G cellular radio
- Support: DVI, HDMI, DVB-T, USB 1.1/2.0 digital TV standards

**Selection Guide**

<table>
<thead>
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<th>Model Code</th>
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<tr>
<td>Feature</td>
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<tr>
<td>ARM Core</td>
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<td>Resolution</td>
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<tr>
<td>Video Encoding Capability</td>
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<tr>
<td>Video Decoding Capability</td>
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<tr>
<td>System Connectivity</td>
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</table>

**Development Support**

- PDK Product Development Kit (PDK): provides a complete tool chain to facilitate rapid product development.
- Includes Application Development Board (ADB) and Board Support Package (BSP) software and a Nand-boot test.
- Field proven reference software is also available for applications such as projectors and Android TV.

**Product Development Kits Selection Guide**

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<th>Port Number</th>
<th>Product Development Kits (BSP + Reference Application SW)</th>
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<td>ADS1938G24-A-A0 SSD1938, WVGA, Android 2.3 BSP, 256MB DDR2, D2533</td>
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<tr>
<td>SSD1938G24L</td>
<td>ADS1938G24-L-A0 SSD1938, BSP, Linux 2.6.29, VGAout, Awind MirrorOps, Office Viewer</td>
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<tr>
<td>SSD1936KIT</td>
<td>SSD1936KIT* SSD1936SOM; 800X480, WVGA; Linux 2.6.29/Android 2.3</td>
</tr>
<tr>
<td>SSD1935KIT</td>
<td>SSD1935KIT* SSD1935SOM; 800X480; Linux 2.6.24, Embedded BSP</td>
</tr>
<tr>
<td>ADS-WE8626-PI</td>
<td>ADS-WE8626-PI SSD1935, Projector Reference SW, BSP, Linux 2.6.24, Office Viewer</td>
</tr>
</tbody>
</table>

**Solutions in silicon**

- **Mobile System**
  - **Multimedia Solution**
    - Smart LCD Support
    - Built-in NTSC/PAL TV encoder
    - Connectivity with HDMI, analogue front-end decoder, Ethernet, IP
    - Connectivity with Wi-Fi, UFS, Bluetooth, RF/HF, 2G/3G cellular radio
    - Support: DVI, HDMI, DVB-T, USB 1.1/2.0 digital TV standards

- **System Connectivity**
  - Built-in touch panel controller
  - Vertical keystone correction
  - Built-in NTSC/PAL TV encoder
  - Connectivity with HDMI, analogue front-end decoder, Ethernet, IP
  - Connectivity with Wi-Fi, UFS, Bluetooth, RF/HF, 2G/3G cellular radio
  - Support: DVI, HDMI, DVB-T, USB 1.1/2.0 digital TV standards

- **Hardware**
  - Video input protection
  - Power management

- **Packaging**
  - 328MM: 1280, 880, 720, 480
  - TFBGA-373 CFP-64
  - TFBGA-235 CFP-64
  - TFBGA-289 CFP-64
  - TFBGA-268 CFP-64

- **Technology**
  - 90nm
  - 130nm

- **Development Support**
  - Technical Training
  - Reference Design

- **Solution Contact**
  - Solomon Systech Limited is a leading semiconductor company providing IC products and system solutions that make a difference in people’s lives. We provide ICs, analog and digital circuits, analog and digital circuit testers, consumer electronics, medical equipment, data communication devices, industrial appliances and green energy applications such as LED lighting.
MagusCore™ SoC provides high quality multimedia solution and recording features for various display units, low cost system design by higher integration of value-added multimedia subsystems, and high performance multimedia computing capable with external multimedia terminal or similar devices. The SoC excels in delivering cost competitive system solutions and enables rich friendly products.

**Key Features**
- High Performance 32-bit Core:
  - 128MB ARM11, 64MB ARM11
- Mobile Multimedia Core:
  - 420MHz DDR2 SDRAM
- Quick Quality Multimedia:
  - Multiple up to 20GB video encoder
  - 2D graphics engine for 1080i decoder
  - Content adaptation for backlight control
  - Sleep mode – with host wake-up control

**High Quality System Integration**
- High-speed data codec (256MB)
- USB 2.0 Hi-Speed and 4 Interf.
- EV-DO support 802.11i and ITU-T G114 interfaces
- High-speed video codec (128MB)
- Back to NXP2U, TV encoder
- Back to multimedia TV encoder
- Vertical keystone correction
  - Telmate ODM/VME

**System Connectivity (Wire and Wireless Devices)**
- Connectivity, with HDMI, analog front-end decoder, Eusb/PHI
- Connectivity with WiFi, GPS, Bluetooth, WiMedia, 3G/1G codec audio
  - Support CMMB, DMB, TV, DVB-T digital TV standards

### Selection Guide

<table>
<thead>
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<th>Part Number</th>
<th>SSD1016</th>
<th>SSD1017</th>
<th>SSD1018</th>
<th>SSD1019</th>
</tr>
</thead>
</table>
| **Features**
| Host x 1 | Host x 1 | Host x 1 | Host x 1 |
| Device x 1 | Device x 1 | Device x 1 | Device x 1 |
| **Development Support**
| EUSB™ Future (TD) | EUSB™ Future (TD) | EUSB™ Future (TD) | EUSB™ Future (TD) |
| **Manufacturing Utilities**
| SSD1938GKIT, SSD1938SOM; 800X480, WVGA | SSD1938GKIT, SSD1938SOM; 800X480, WVGA | SSD1936GKIT, SSD1936SOM; 480X272, WQVGA | SSD1935GKIT, SSD1935SOM; 320X240, QQVGA |
| **Technical Training**

* Please contact WE3 salesperson for more information: sales@we3technology.com

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**Product Development Kit**

MagusCore™ PDK provides a complete tool chain to facilitate rapid prototyping, development, and validation of applications. Development Kit (SDK) includes software and a standalone test. Field proven reference software is also available for applications such as projectors and Android MID. The PDK is a comprehensive kit that product information can be easily obtained to capture the market segment.

**Development Support**
- PDK
- Application Notes
- Reference Design

**Manufacturing Utilities**
- Customer Demonstrations

**Technical Training**
- Technical Training

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Multimedia Solution

**Total Solution - Linux Applications**

MagusCore™ solutions support a number of Linux-connected functions, and focused product applications which allow instant start of user content at instance access of line-of-business, will bring volume multimedia to a new dimension.

- **MagusCore™ SSD1935**: with stacked mobile DDR, allows more power efficient and compact portable product design.
- **Key Features**:
  - Multi-display support, Linux 2.6.29
  - Processor interface design with advanced projector optical light engines (Plus to Main-stream)
  - Native display resolution: WXGA (1280x800) and WVGA (800x480)
  - Support full HD video playback using GStreamer Player
  - Support advanced processor (ARM11 for more demanding applications)
  - Support high quality stereo rite
  - Support photo viewing (8 Mpixel per second, JPEG decode)
  - Support USB streaming – PC transmission or projection via USB 2.0 connection
  - WiFi streaming – PC transmission or projection via WiFi 802.11n connection
  - Support NTSC/PAL TV-output (Composite) standards
  - Support microSD / T-Flash memory card up to 16GB
  - Support 3.2Mpixel or VGA (640x480) CMOS camera sensor
  - Support Enhanced ‘Magic’ graphic scalar for different video resolutions
  - Support MP3, AAC, WMA, RA, WAV, FLAC audio playback
  - Support H.264, MPEG4, MPEG2, FLV, MJPEG, MKV video playback
  - Support multi-points capacitive touch panel control
  - Support USB WiFi or SDIO WiFi
  - Support 3G/4G cellular radio
  - Support Ethernet connectivity
  - Support USB2.0 Thumb Drive
  - Support walker, Multi-core Processor, 32-bit ARM, dedicated video processing unit for highly demanding multimedia applications
  - Support MP3, AAC, WMA, RA, WAV, FLAC audio playback
  - Support H.264, MPEG4, MPEG2, FLV, MJPEG, MKV video playback
  - Support multi-points capacitive touch panel control
  - Support USB WiFi or SDIO WiFi
  - Support 3G/4G cellular radio
  - Support Ethernet connectivity
  - Support USB2.0 Thumb Drive
  - Support walker, Multi-core Processor, 32-bit ARM, dedicated video processing unit for highly demanding multimedia applications

**Total Solution - Android Applications**

Android operating system enables users to enjoy instant access to the Internet world and the use of the vast amount of Android APKs. To SSD1939 and SSD1938 Android solutions have been adapted in Android PDF smart phones, GPS trackers, advertising machines, medical devices, media boxes and HDMi Dongles.

- **Key Features**:
  - Operating system: Android 2.3.5
  - Internal 2GB NAND flash and 128MB DDR2 memory
  - Native display resolution: WXGA (1280x800) and WVGA (800x480)
  - Support full HD video playback using GStreamer Player
  - Support 2DGA graphic engine
  - Support multi-points capacitive touch panel control
  - Support USB WiFi or SDIO WiFi
  - Support Bluetooth 2.1
  - Support NFC
  - Support FM radio
  - Support USB2.0 Thumb Drive
  - Support HDMI transmit for full HD video playback
  - Support NTSC/PAL TV-output (Composite) standards
  - Support microSD / T-Flash memory card up to 16GB
  - Support 3.2Mpixel or VGA (640x480) CMOS camera sensor
  - Support Enhanced ‘Magic’ graphic scalar for different video resolutions
  - Support MP3, AAC, WMA, RA, WAV, FLAC audio playback
  - Support H.264, MPEG4, MPEG2, FLV, MJPEG, MKV video playback
  - Support multi-points capacitive touch panel control
  - Support USB WiFi or SDIO WiFi
  - Support 3G/4G cellular radio
  - Support Ethernet connectivity
  - Support USB2.0 Thumb Drive
  - Support walker, Multi-core Processor, 32-bit ARM, dedicated video processing unit for highly demanding multimedia applications

**Applications**

- SSD1935 is embedded with2DGA capable multimedia IDE/HDMI and fits into a small package which is ideal for battery powered small form factor multimedia products such as pico-projector, portable IP camera, sport watches, mobile DTV devices, etc.
- SSD1936 offers higher CPU and DSP power for more demanding multimedia applications, such as UVC camera applications, UAC microphone applications, smart surveillance systems, portable DTV, Wince PMP, Android PMP, Android GPS trackers, professional touch guitars, etc.
- SSD1937 and SSD1938 are equipped with high performance ARM11/16-bit embedded video processor unit for true full HD video performance, capable of processing up to complex user interface design and full HD display features for 3D projector products. The Tegra recording function in SSD1937 is also prepared for video conferencing application. They are ideal for products like UVC applications, point projectors, consumption products, 3D conversion projectors, Android PMP, PMP, medical devices, smartphones, media box, remote control devices, etc.
- The solution SSD1938 is targeted for high resolution and high performance Android-based home entertainment products including smart TV and smart projectors, which will take the consumers closer to the cloud computing space.
Total Solution - Linux Applications

MagusCore™ solutions with Linux operating system enables cost effective and high quality video playback for advanced display systems such as projectors, and high definition video recording for products such as IP cameras.

SSD1038 integrates many advanced image processing features for projector products, and the dual LCD controllers are designed for high performance applications as well as display systems requiring a secondary display for the touch user interface. SSD1038, with stacked mobile DDR, allows more power efficient and compact portable product design.

MagusCore™ solutions supporting a number of LAN connected functions, and focused product applications which allow instant sharing of computer content or instant access of Internet contents, will bring wireless multimedia to a new dimension.

Key Features

- Operating system: Linux 2.6.29
- Power interface design with advance power and optional high efficiency (Plus to Main strand)
- Native display resolution: WXGA (1280x800) and WXGA (800x600)
- Supports full HD video playback using SSD1035/1036
- Supports 1080p/1080i HDMI output
- Supports high quality stereo music
- Supports up to 720p recording.
- Support full HD video playback using GStreamer Player
- Native display resolution WXGA 1280x800 and WVGA 800x480
- Operating system, Linux 2.6.29

Total Solutions - Android Applications

Android operating system enables products to enjoy instant access to the internet world and the use of the vast amount of android APKs. The SSD1037 and SSD1038 Android solutions have been adopted in Android PMP, smart phones, GPS trackers, advertising machines, medical devices, media boxes and HDMI dongle.

For more power efficient designs, the media core option can significantly increase the battery life of portable devices, while the support advanced H.264 encoder and OMAP core feature can reduce the LCD backlight duty by 30% during video playback.

Key Features

- Operating systems: Android 3.5
- Internal 2GB NAND Flash and 128MB DDR3 reverse
- Marine interface: SSD1036 and SSD1035 powered by MagusCore™ 25GA graphic engine
- Support multi-point ITouch touch panel control
- Support HDMI, MHL, MDP, LVDS, MDM video playback
- Support MTP, A2DP, A2DP, VAG, FLAC audio playback
- Support JPEG, BMP and PNG
- Support JPEG, BMP and PNG
- Support photo viewing (64 Mpixels per second JPEG decode)
- Support high quality stereo music
- Support up to 720p recording.
- Support high definition video playback
- Native display resolution 800x480 and 1024x768 powered by MagusCore™ 25GA graphic engine
- Operating system: Linux 2.6.29
- Power interface design with advance power and optional high efficiency (Plus to Main strand)
- Native display resolution: WXGA (1280x800) and WXGA (800x600)
- Supports full HD video playback using GStreamer Player
- Native display resolution WXGA 1280x800 and WVGA 800x480
- Operating system, Linux 2.6.29

Television applications in silicon

Total Solutions for Display Systems

MagusCore™ family of System-on-Chip (SoC) solutions from Solomon Systech is an application processor platform designed for portable multimedia applications. The multimedia processing based on dual core architecture. It has integrated on advanced PPU, Cores with highly power efficient multimedia core, DSP in VPU, for high performance multimedia applications. The SoC supports a wide range of multimedia functions including MP3, 24-bit A/D for playback and recording applications up to 1.2 GHz.

MagusCore™ SoC enables very cost competitive designs using integrated peripherals and memory interfaces such as SPI, Ethernet MAC, PCIe, LVDS, touch sensing ARC, HDMI, AV, and 64-bit ECC capabilities. Its integrated power management mechanism, frequency scaling, graphic acceleration engines, constant based on system-based energy saving features will benefit battery-powered devices and make products eco-friendly.

The MagusCore™ Product Development Kit comes with a comprehensive set of firmware driver, robust Linux kernel and reference software applications. Using an Android software can greatly simplify making.

The SSD1039 solution provides a wide variety of SoC spanning in silicon to software products.

SSD1039 is embedded within 256MB mobile DDR2 SDRAM and fits into a small package which is ideal for battery powered small form factor multimedia products such as pico projectors, portable PC camera, sport watches, mobile DTV device, etc.

SSD1039 offers higher CPU and DSP power for more demanding multimedia applications, such as UI applications, DSP applications, connected video surveillance systems, portable DLP, WinCE, Android PMP, Android (PMP), smart medical devices, smartphones, media boxes, remote control, etc.

The SSD1039 is targeted for high resolution and high performance Android-based home entertainment products including smart TV and smart projectors, which will take the consumers closer to the cloud computing space.

Applications

• 256MB mobile DDR2 SDRAM
• 256MB mobile DDR2 SDRAM
• 256MB mobile DDR2 SDRAM

SoC + Software + Applications

SSD1039 is embedded within 256MB mobile DDR2 SDRAM and fits into a small package which is ideal for battery powered small form factor multimedia products such as pico projectors, portable PC camera, sport watches, mobile DTV devices, etc.

SSD1039 offers higher CPU and DSP power for more demanding multimedia applications, such as UI applications, DSP applications, connected video surveillance systems, portable DLP, WinCE, Android PMP, Android (PMP), smart medical devices, smartphones, media boxes, remote control, etc.

The SSD1039 is targeted for high resolution and high performance Android-based home entertainment products including smart TV and smart projectors, which will take the consumers closer to the cloud computing space.

SSD1040 is designed with ARM11 based processor core, with overall interface design and display features.

SSD1040 offers higher CPU and DSP power for more demanding multimedia applications, such as UI applications, DSP applications, connected video surveillance systems, portable DLP, WinCE, Android PMP, Android (PMP), smart medical devices, smartphones, media boxes, remote control, etc.

SSD1040 and SSD1038 are operating with high performance ARM11/12 microcontroller core sets for low power video display processing unit for high definition video display processing and full graphics interface design and display features for 3D projector products. The Tegra2 recording function in SSD1040 is also prepared for video conferencing applications. They are ideal for products like projector, pained projectors, multimedia projectors, 3D LCOS projectors, Android PMP, smart medical devices, smartphones, media boxes, remote control, etc.

The SSD1040 is targeted for high resolution and high performance Android-based home entertainment products including smart TV and smart projectors, which will make the consumers closer to the cloud computing space.
Solomon Systech Limited

MagusCore™ SoC provides high quality multimedia staided and recording functions for various display units, low cost system design by higher integration of value-added multimedia subsystems, and high performance real time connectivity in cooperation with external multimedia terminal or external devices. The SoC features excellent cost competitive system solutions and enables cost-friendly products for various applications.

Key Features
- High Performance 800 Core
- DDR2, mDDR, SPI
- Tough Screen ADC
- USB 2.0
- NAND Flash
- MEMC PLL
- SDIO 3
- SDIO
- LCDC 1
- Power Management
- KPP / GPIO
- WDT
- VPP

System Connectivity

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<th>System Connectivity</th>
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<td>Connect-adapter based backlight control</td>
<td>Connect-adapter based backlight control</td>
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<td>Multi-touch up to 720p video encoder</td>
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<td>USB 2.0 &amp; USB 3.0 Device</td>
<td>USB 2.0 &amp; USB 3.0 Device</td>
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<td>Camera Interface</td>
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<td>High speed RGB 888 input for 3D video</td>
<td>High speed RGB 888 input for 3D video</td>
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<td>DV-in support BT656 and BT1120 HD interfaces</td>
<td>DV-in support BT656 and BT1120 HD interfaces</td>
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<td>2D Graphic Acceleration 2DGA Draw 2D Draw 2D</td>
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Memory Interface

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<td>mDDR</td>
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Video Format

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Key Features

- High Performance 800 Core
- DDR2, mDDR, SPI
- Tough Screen ADC
- USB 2.0
- NAND Flash
- MEMC PLL
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- SDIO
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