# Graphics Controllers **COMPARISON TABLES**

## Comparison table – devices

| Device | MB86290A 'Cremson' | MB86291A 'Scarlet' | MB86292 'Orchid' | MB86293 'Coral Q' | MB86294 'Coral B' | MB86295 'Coral P' | MB86296 'Coral PA' | MB87P2020A 'Jasmine' | MB86276 'Lime' | MB86277 'Mint' | MB88F332 'Indigo' | MB86297A 'Carmine' | MB86R01 'Jade' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Classification:** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **SOC** |
| **Video Output:** | | | | | | | | | | | | | |
| RGB Output: analogue / digital | 1/0 | 1/1 | 0/1 | 0/1 | 1/1 | 1/1 | 1/1 | 1/1 | 0/2 | 1/1 | 0/1 | 0/2 | 0/2 |
| Dual display output (multiplexed for 2 displays per output) | | | | | | | • | | • | | | • | • |
| Video Sync signals / TCON signals | • / - | • / - | • / - | • / - | • / - | • / - | • / - | - / • | • / - | • / - | • / • | • / - | • / - |
| Output TTL / RSDS | • / - | • / | • / | • / | • / - | • / - | • / - | • / - | • / - | • / - | • / • | • / - | • / - |
| Digital colour output format | | 24-bit | 24-bit | 24-bit | 24-bit | 24-bit | 24-bit | 24-bit | 24-bit | 24-bit | 18-bit | 24-bit | 24-bit |
| Max. Output resolution (typ. @60Hz): | | | | | | | | | | | | | |
| 800 x 600 (SVGA) | | | | | | | | • | | | | | |
| 1024 x 480 | | | | | | | | | | | • (1280 x 480) | | |
| 1024 x 768 (XGA) | • | • | • | • | • | | | | | • | | | |
| 1280 x 768 (BrightView) | | | | | | • | | | | | | | |
| 1280 x 1024 (SXGA) | | | | | | | • | | • | | | • | • |
| Number of simultaneous display layers (per display output) | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 512 | 8 | 6 |
| **Layer alpha blending:** | | | | | | | | | | | | | |
| Constant blending for top layer | • | • | • | | | | | | | | | | |
| Constant blending for all layers | | | | • | • | • | • | | • | • | • | • | • |
| Per pixel alpha blending | | | | • | • | • | • | | • | • | | • | • |
| **Video Input:** | | | | | | | | | | | | | |
| ITU-R-B.656 (YCbCr422, YUV422) | | • | • | | • | • | • | • | • | • | | • | • |
| RGB Digital (RGB666) | | | | | | • | • | • | • | • | | • | • |
| Number of inputs (mutliplexed) | | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | | 2 | 2 |
| APIX video link | | | | | | | | | | | 1 | | |
| **Video scaling:** | | | | | | | | | | | | | |
| Upscaling (horizontal / vertical) | | | | | • / • | • / • | • / • | | • / • | • / • | | • / • | • / • |
| Downscaling (horizontal / vertical) | | • / • | • / • | | • / • | • / • | • / • | | • / • | • / • | | • / • | • / • |
| **Rendering:** | | | | | | | | | | | | | |
| 2D + 3D primitives | • | • | • | • | • | • | • | 2D only | 2D only | 2D only | | • | • |
| Geometry processor | | • | • | • | • | • | • | | | | | • | • |
| Lighting Engine | | | | | | | | | | | | • | |
| **Texture Mapping:** | | | | | | | | | | | | | |
| Max. 256 x 256 | • | • | • | | | | | | | | | | |
| Max. 512 x 512 | | | | | • | | | | | | | | |
| Max. 4096 x 4096 | | | | • | • | • | • | | • | • | | • | • |
| Video texturing | | | | | | | • | | | | | • | • |
| **Drawing alpha blending:** | | | | | | | | | | | | | |
| Constant blending | • | • | • | • | • | • | • | | • | • | • | • | • |
| Per pixel alpha blending | | | | • | • | • | • | | • | • | | • | • |
| **Control Interface:** | | | | | | | | | | | | | |
| I²C | | 1 | 1 | | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 |
| SIO | | | | | | 1 | 1 | | 1 | | 1 | | |
| Peripherals | | | | | | | | | | | • | | • |

# Graphics Controllers **COMPARISON TABLES**

## Comparison table – devices continued

| Device | MB86290A 'Cremson' | MB86291A 'Scarlet' | MB86292 'Orchid' | MB86293 'Coral Q' | MB86294 'Coral B' | MB86295 'Coral P' | MB86296 'Coral PA' | MB87P2020A 'Jasmine' | MB86276 'Lime' | MB86277 'Mint' | MB88F332 'Indigo' | MB86297A 'Carmine' | MB86R01 'Jade' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Classification:** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **GPU** | **SOC** |
| **System:** | | | | | | | | | | | | | |
| Chip core frequency (MHz) | 100 | 100 | 100 | 166 | 166 | 166 | 166 | 64 | 133 | 100 | 80 | 266 | 333 |
| CPU Host Interfaces: | | | | | | | | | | | | | |
| SRAM, non multiplexd, 32 bit buswidth | • | • | • | • | • | | | • | • | • | | | |
| SRAM, non multiplexd,16 bit buswidth | | | | | | | | • | • | | | | |
| PCI | | | | | | PCI33 | PCI33 | | | | | PCI66 | |
| APIX command side band link | | | | | | | | | | | • | | |
| SPI | | | | | | | | | | | • | | |
| I²C | | | | | | | | | • | | | | |
| Integrated CPU | | | | | | | | | | | | | ARM |
| Package | QFP240 | QFP208 | QFP256 | QFP256 | BGA256 | BGA256 | BGA256 | QFP208 | BGA320 | LQFP256 | QFP208 | BGA543 | BGA484 |
| Deviating Temp. Range (Standard: -40 to +85°C) | • | -30 to +85°C | • | • | • | • | • | • | • | • | -40 to +105C | • | • |
| Embedded RAM, graphic memory (MB) | | 2 | | | | | | 1 | | | 0.136 | | |
| Embedded ROM memory (MB) | | | | | | | | | | | 0.16 | | |
| Max. External video memory (MB): | 32 | | 32 | 64 | 64 | 64 | 64 | | 64 | 64 | | 128 | 128 |
| FCRAM / SDRAM (MHz) | 100 | | 133 | 133 | 133 | 133 | 133 | | 100 | 100 | | | |
| DDR2 (MHz) | | | | | | | | | | | | 133 | 166 |
| **Software / OS Support:** | | | | | | | | | | | | | |
| Graphic API | | | | | | | | • | | | | | |
| Access Library V02 support (Windows XP, Linux, No OS) | • | • | • | • | • | • | • | | • | • | | | |
| Access Library V03 support (Windows XP, Linux, No OS) | | | | | | | • | | | | | • | • |
| OpenGL Support (Windows XP, Linux, No OS) | | | | | | | | | | | | • | |
| GDC-Studio Tool | | | | | | | | | | | • | | |

## Comparison table – tools

| Evaluation Board | Description | Device |
|---|---|---|
| MB86290EB01 | PCI board for PCs (Windows) | MB86290A Cremson |
| MB86291EB01 | PCI board for PCs (Windows) | MB86291A Scarlet |
| MB86292EB01 | PCI board for PCs (Windows) | MB86292 Orchid |
| MB8629XEB01+MB86293EB01* | Dual PCI board system (Windows) | MB86293 Coral Q |
| MB8629XEB01+MB86294EB01* | Dual PCI board system (Windows) | MB86294 Coral B |
| MB86295EB01 | PCI board for PCs (Windows) | MB86295 Coral P |
| MB86296EB02 | PCI board for PCs (Windows) | MB86296 Coral PA |
| MB86296-ADA01 | Dual display adapter board | MB86296 Coral PA |
| MB86297EB01 | PCI board for PCs (Windows) | MB86297A Carmine |
| CREMSON-STARTERKIT-CRM | Sub-board for Cremson Modular Starterkit | MB86290A Cremson |
| CREMSON-STARTERKIT-ROSE | Sub-board for Cremson Modular Starterkit | MB86291A Scarlet |
| CREMSON-STARTERKIT-JAS | Sub-board for Cremson Modular Starterkit | MB87P2020A Jasmine |

## Comparison table – tools continued

| Evaluation Board | Description | Device |
|---|---|---|
| CREMSON-STARTERKIT-LIME | Sub-board for Cremson Modular Starterkit | MB86276 Lime |
| CREMSON-STARTERKIT-CPU | CPU board for Cremson Modular Starterkit | MB91302 Host CPU |
| CREMSON-STARTERKITCPU369 | CPU board for Cremson Modular Starterkit | MB91369 Host CPU + Debug RAM |
| STARTERKIT MB91302 | CPU board for Cremson Modular Starterkit | MB91302 Host CPU + Debug RAM |
| SK-91F467D-208PFV | CPU board for Cremson Modular Starterkit | MB91F467D Host CPU + Debug RAM |
| SK-86276-91F467D | Stand-alone board | MB86276 Lime + MB91F467D Host CPU |
| SK-86277-91F467D | Stand-alone board | MB86277 Mint + MB91F467D Host CPU |
| SK-86R01 | Jade Evaluation board (4 modules) | MB86R01 Jade |
| SK-86R01-EMWI | Jade Evaluation board (4 modules) + EMWI Software + LCD | MB86R01 Jade |
| SK-86R01-TERMINAL | Jade Evaluation board (2 modules) | MB86R01 Jade |
| SK-88F332 | Stand-alone board | MB88F332 Indigo |

*** Combination of motherboard (MB8629XEB01) and sub-board (MB86293EB01 or MB86294EB01) - both items must be ordered separately. When ordering, please specify the item according to the 'Evaluation / Development' board name.**