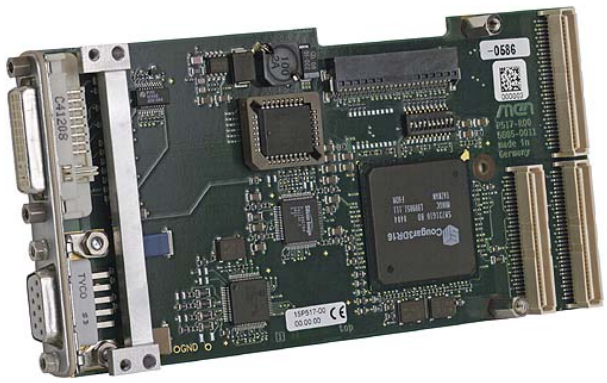
Embedded Solutions

P517 - Graphics Accelerator PMC



- **Graphics controller SM731**
- **16 MB integrated graphics RAM**
- **4 Mbit video BIOS ROM**
- **Up to 1600 x 1200 pixels**
- **Up to 16.7 M colors**
- **Up to 85 Hz refresh rate**
- **LCD (up to UXGA) and CRT via DVI-I (front)**
- **PanelLink via DVI-I (front)**
- **S-Video I/O and Composite Video out via D-Sub (front)**
- **2x LVDS via on-board connector**

The P517 is a high-performance graphics controller suitable for any PMC compliant host carrier board in any type of bus system, i.e. CPCI, VME or on any type of stand-alone SBC. A similar functionality is also available on PC-MIP®, a PCI-based mezzanine card in a smaller form factor. Appropriate PMC and PC-MIP® carrier cards in 3U, 6U and other formats are available from MEN or other manufacturers.
The P517 features the Silicon Motion SM731 3D/2D dual display controller which manages graphics processing. The SM731 supports a 235-MHz, 24-bit RAMDAC at a maximum of 1600 x 1200 pixels resolution and delivers enhanced multi-display capabilities. It can drive two independent digital displays (dual digital), either with identical or with different screen displays. Simultaneously, it can drive LCD, CRT and TV displays (DualMon). The controller also incorporates two 112-MHz max pixel clock LVDS channels that can drive two separate panels or a single high-resolution panel (UXGA).
The P517 provides a Digital Video Interface (DVI-I) for LCD and CRT via a DVI-I front-panel connector. It also provides an S-Video input and output and Composite Video output via a D-Sub front-panel connector. Both LVDS channels are supported via an onboard plug connector (optionally via the P4 rear I/O connector). These connections can be used to control a panel.

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Technical Data

Graphics Control
- SM731 controller
- Video
  - Zoom video port
  - Video filtering
  - Multiple independent hardware video windows
- Memory
  - 16MB embedded SGRAM
  - 64-bit memory interface
  - Various on-chip DRAM memory configurations
- DVI via PanelLink transmitter
  - Integrated Dual Channel LVDS transmitters
  - Single or dual pixel per clock
  - DualMon support
  - Up to 1600 x 1200 resolution
  - Up to 16.7M colors
- RAMDAC
  - 235MHz
  - 24 bits
  - Up to 1600 x 1200 resolution
  - Up to 16.7M colors
- Video BIOS ROM
  - 4 Megabit (512K x 8 bits)

Interfaces
- DVI-I via front-panel connector
- S-Video Output/Input and Composite Video Output via front-panel connector
- LVDS1 and LVDS2 via onboard connectors

PCI Characteristics
- 32-bit PCI, complying with PCI Local Bus Specification, Rev. 2.2
- 33MHz
- Target

Peripheral Connection
- Via front panel on one DVI-I connector and one standard 9-pin D-Sub receptacle connector
- Via optional onboard 50-pin plug connector
- Option: Via Pn4 rear I/O

Electrical Specifications
- Isolation voltage: tbd.
- Supply voltage/power consumption:
  - +5V (4.85V..5.25V), 900mA max.
  - +3.3V (3.0V..3.6V), 1.4A typ.
- MTBF: tbd. @ 50°C (derived from MIL-HDBK-217F)

Mechanical Specifications
- Dimensions: conforming to IEEE 1386.1
- Weight: 84g

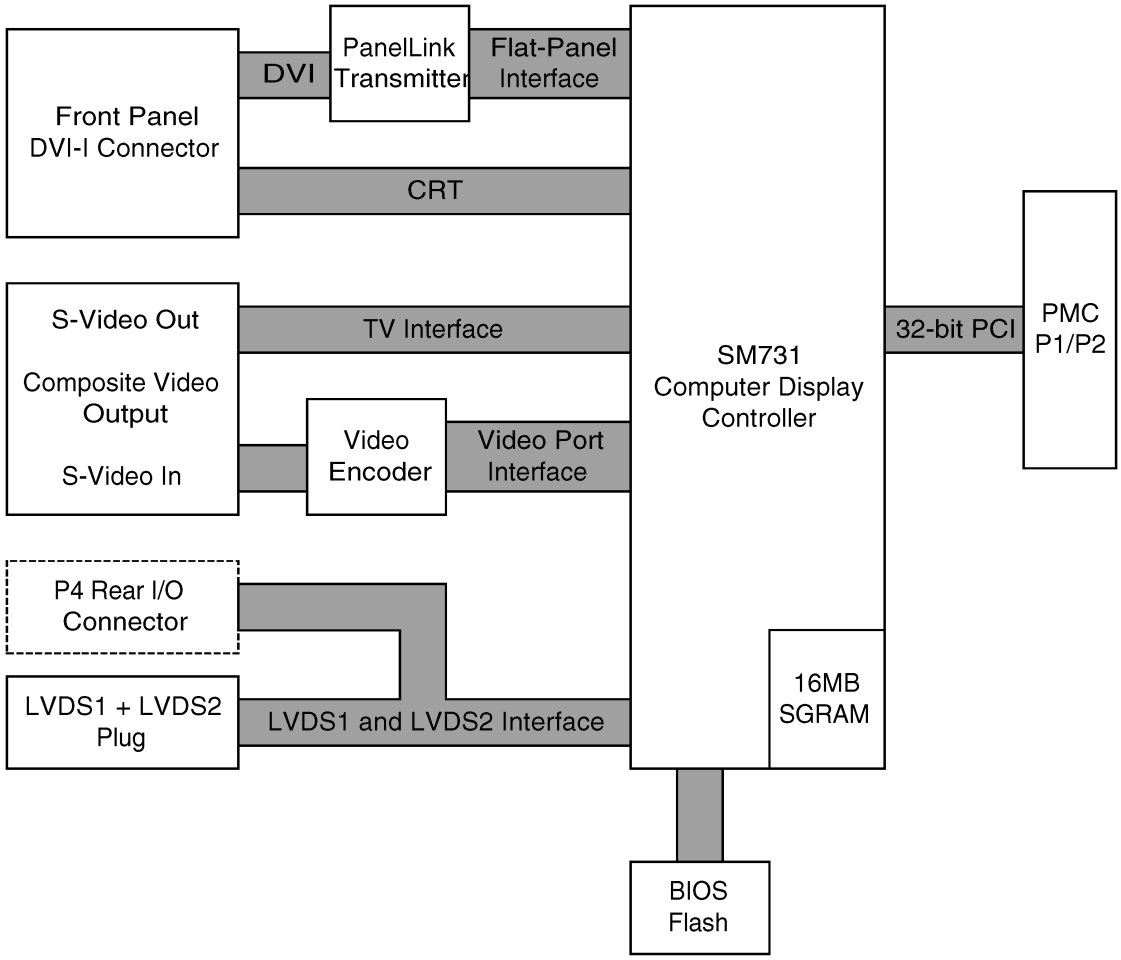
Environmental Specifications
- Temperature range (operation):
  - 0..+60°C
  - Industrial temperature range on request
  - Airflow: min. 10m³/h
- Temperature range (storage): -40..+85°C
- Relative humidity (operation): max. 95% non-condensing
- Relative humidity (storage): max. 95% non-condensing
- Altitude: -300m to + 3,000m
- Shock: 15g/11ms
- Bump: 10g/16ms
- Vibration (sinusoidal): 2g/10..150Hz
- Conformal coating on request

Safety
- PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers

EMC
- Tested according to EN 55022 (radio disturbance), IEC1000-4-2 (ESD) and IEC1000-4-4 (burst)

Software Support
- Driver support for Windows® 2000/XP, OS-9® (incl. C library and shared library module for XiBase9)
- For more information on supported operating system versions and drivers see Software.

Diagram


Front Panel
DVI-I Connector
DVI
PanelLink
Transmitter
Flat-Panel
Interface
CRT
S-Video Out
Composite Video
Output
S-Video In
TV Interface
Video
Encoder
Video Port
Interface
SM731
Computer Display
Controller
32-bit PCI
PMC
P1/P2
P4 Rear I/O
Connector
LVDS1 + LVDS2
Plug
LVDS1 and LVDS2 Interface
16MB
SGRAM
BIOS
Flash

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Ordering Information

Standard Hardware

15P517-00	Graphics accelerator, 16MB integrated SGRAM, 4 Mbit Flash BIOS, S-Video In/Out and Composite Video Output, 0..+60°C, no RoHS

Miscellaneous

05F007-02	DVI-to-VGA cable, DVI plug to 15-pin HD-Sub plug, 2m, -20..+70°C
05F007-03	Adapter, DVI analog plug to VGA 15-pin HD-Sub receptacle, -20..+70°C
05P017-00	Splitter cable D-Sub S-Video In/Out, Composite Video Output to 2 mini DIN 4-pin/RCA jacks

Software: Windows

13P017-71	Windows 2000: Graphics driver for P517 (SMI, object code)
13P017-72	Windows XP: Graphics driver for P517 (SMI, object code)

Software: OS-9

13P017-01	OS-9: C library for P517 for simple portations of various graphics packages based on a frame buffer interface
13P017-02	OS-9: Shared library module XiGfx.dll. for P517 for XiBase9

Documentation

20P517-00	P517 User Manual

For the most up-to-date ordering information and direct links to other data sheets and downloads, see the P517 online data sheet under » www.men.de.

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