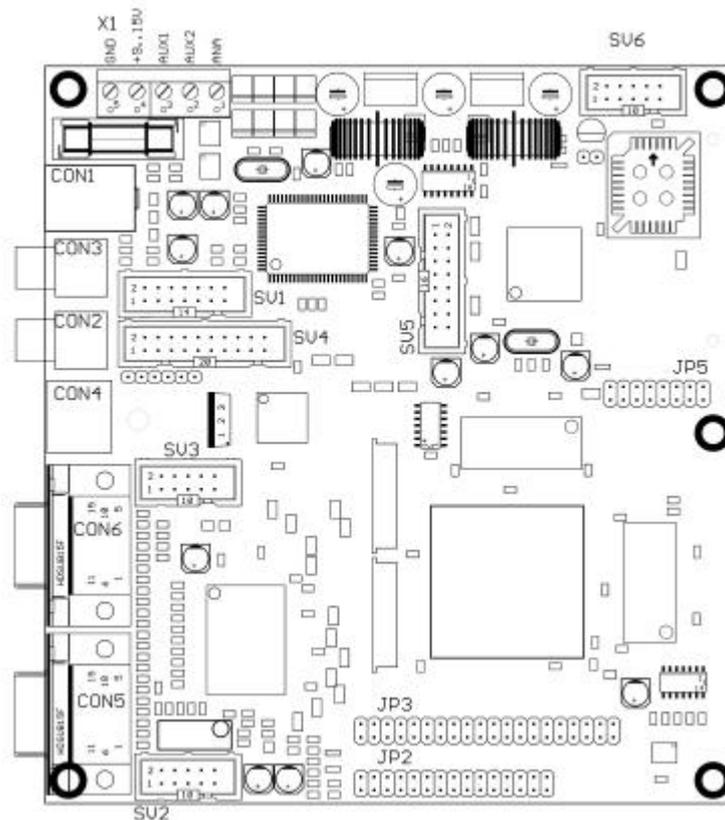


**Multi Media Interface Board
MMIB****MMIB2B**

PRODUCT FLYER

**MMIB2B****Multi Media Interface Board
for TFT and Plasma Displays**

The products and specifications are subject to change without notice.
Please ask for the latest releases to guarantee the satisfaction of your product requirements.

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Multi Media Interfaceboard

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1. Features

 **NEW**

PC input features

- 2nd PC input On-Board.
- Separate HV-Sync, Composite Sync and Sync on Green on both PC Inputs. No additional Hardware required.
- Input Timing "Restrictions": 10 to 140Mhz, 15..100kHz, 20..150Hz
- Auto adjust of all geometry parameters @ PC inputs. Includes phase and contrast adjustments.
- Black&White circuit @ 2nd PC Input (Color information taken from Green Channel is distributed to Red and Blue Channels)
- DVI prepared. (in production)

 **NEW**

Video input features

- Additional AV (Scart input) at box-type pin header. With RGB fast blank (FB) support. RGB video input also possible. Input board with 21pin SCART plug is in production.
- SDI (serial digital interface @ 270Mhz) prepared. Requires additional SDI input-board. (In production)

 **NEW**

System features

- Temperature sensor (-20 .. 100°C) On-Board.
- Two high current outputs (e.g. fans)
- One general purpose analog output (0..5V)
- Improved backlight dimming range. Analog output 0..5V.
- RS232 on board

 **NEW**

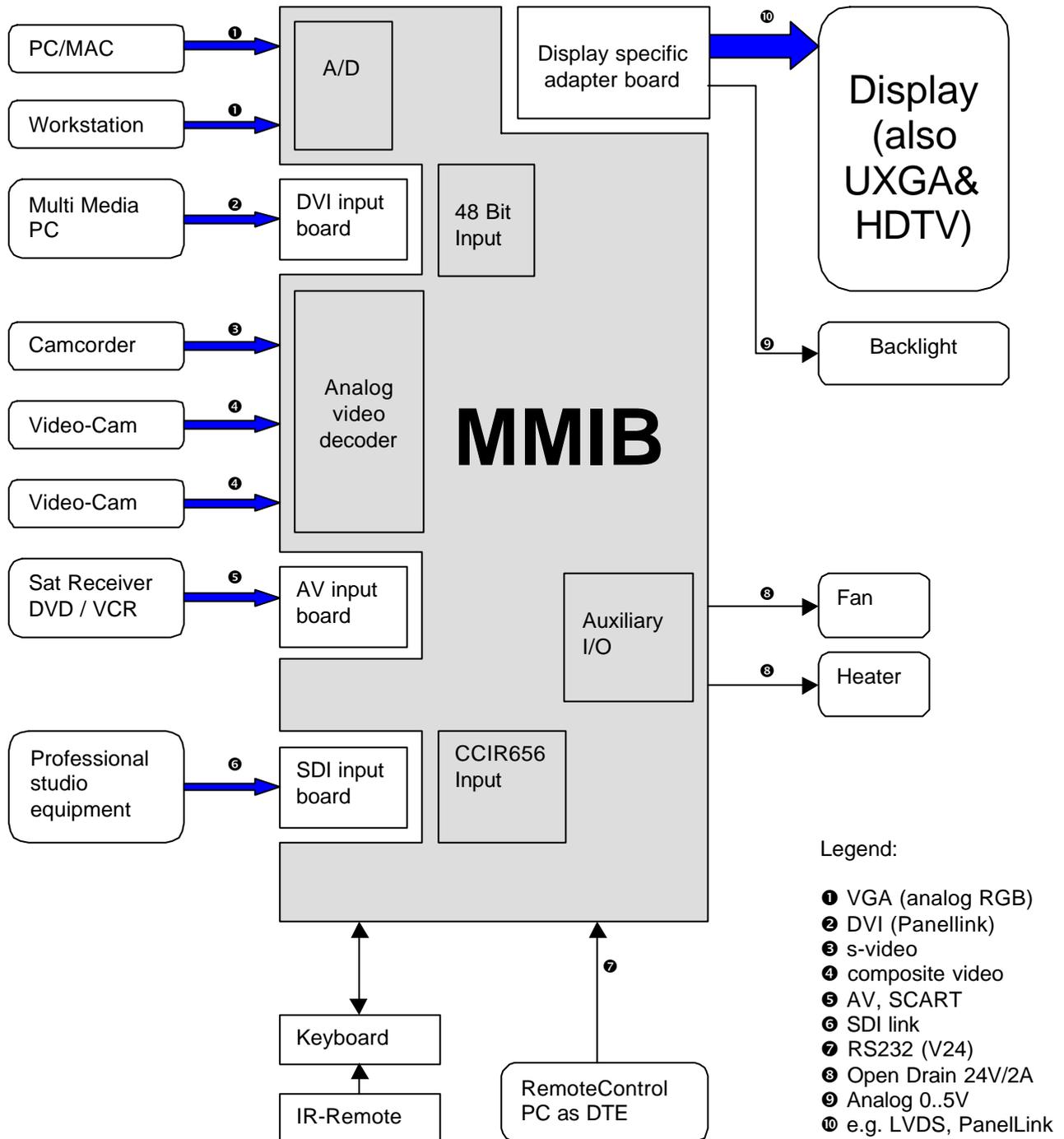
Software features

- **Display Wall Function (up to 32 x 32 Display)**
- Supervision of inactive inputs. (Auto select if a connected device is powered on)
- Firmware Update (e.g. for special customer requirements) via RS232 possible. (PC-Software under development)
- *NEW*: Saturation adjustment @ video Inputs.
- "Motion adaptive", "spatial" or "static-mesh" de-interlacing at any input.

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2. Block diagramm



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3. Features (details)

VGA input (PC signals)

- 2x Input connectors: 15pol HD SubD receptacle (R/G/B/Hsync/Vsync)
- VGA to UXGA and an nearly unlimited range of user resolutions
- Up to 140Mhz sample rate
- „Autoadjust“ function
- Multisync capability, due to frame rate conversion, independent from type of connected display

Video inputs:

- Input connectors: 2x Cinch (FBAS), 1x Mini Din 4pol (s-video, Y/C), 1x full featured AV (Scart) Plug prepared.
- PAL-System with automatic recognition of 4:3, various letterboxes and 16:9 formats
- NTSC and SECAM
- 4H comp filter
- motion adaptive deinterlacing and noise reduction („Movie“ mode)
- spatial deinterlacing („Sport“ mode)
- Horizontal anamorphic scaling/zoom (panorama view / waterglass view)
- No movement artifacts like “frame-tearing”

Digital input:

- DVI prepared (requires I&B INPDVI01)

High-Performance-Scaling

- Full screen support for all input resolutions independent of display resolution, achieved by horizontal and vertical independent magnification or downscaling in real-time.

Frame-memory

- Any input frame rate can be converted to the desired output frame rate which is recommended by the display manufacturer

Display output:

- Single and dual pixel port output (18/24, 36/48 bit) applied on 3.3V or 5V high level
- Up to 160MHz pixel-rate
- Panel Vcc(depends on adapter) 3,3/5/12 V
- Asynchronous output timing in VGA mode, optimized on Panel requirements
- Synchronous output timing on video mode (50/60Hz), to avoid movement artifacts

- Control signals for backlight, PLE, H/V reverse, etc... (depends on display features)

Universal:

- The MMIB2 interface-board is build for running with all displays available in today's market.
- Since the display-adapter (see below) decides which display is connected, the MMIB could shipped without knowing the destination display.
- Recognition of the connected display is done automatically

Other features:

- Control of brightness, contrast, sharpness
- advanced on screen display
- Help function
- Adjustable gammacorrection (off, 1.8, 2.2)
- Keyboard with 5 keys, can be mounted horizontal or vertical, includes IR receiver for remote control
- DPMS (power saving mode adjustable)

Signal Management and Autodetection

- Input search at No Signal
- Auto detection of New Signals at any input
- Power On: Input selection.

Advanced Key features

- Input selection over several keys (toggling or direct)
- User definable Hotkeys (Function-list)

Display Wall

- Display wall with up to 32x32 displays.
- Configuration is done by OSD or RS232.
- Independent from input resolution

Temperature Control & Auxiliary Ports

- Temperature sensor on board
- 2x “digital” 1x analog Auxiliary Ports
- Various functions to control fans, heaters or over/under temperature indication.
- Also useable for special customer requirements

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4. Summary

The MMIB2 is a High-End interface board for an unlimited range of TFT and Plasma Displays.

Superior composite video performance, the capability to process all known (and unknown) VGA timings and formats, with every possible sync type, guarantees customers satisfaction in most applications.

Additionally the MMIB2 provides all input types (SDI and DVI) for a system which will be “up to date”, even tomorrow.

All types of display interfaces are supported. Like: 18/24 36/48 Bit parallel @3.3V or 5V level, single or dual LVDS and PanelLink. Even analog displays run with the MMIB.

This is done by a wide range of so called “Adaptersets” including:

- a small “add on” board (Adapterboard)
- Cables to drive the panel.
- Cables for backlight supply and control.

Starting at 6.4” VGA over 21.3” UXGA up to 55” HDTV displays the MMIB2 represents the ideal solution for manufacturers with a wide range of monitors.

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5. Functional description:

VGA input

- Following parameters are adjustable for optimized digitalization of the input frame: pixelrate, active pixels, active lines, X/Y position and phase shift. Therefor not only all common VESA resolutions, but also free defined user resolutions are provided.
- The multisync function recognizes all former adjusted input formats carefully on H / V frequencies and sync polarity and type. Also adjusted user formats will be stored. Best as possible, new formats are adjusted by the autoadjust function. This includes: All geometry parameters, phase-shift, and optimizes the contrast setting. Also auto black&white detection (only @ 2nd PC Input).

Video input

- Due to the 4H comb filter color recovery is done in an sophisticated way for composite signals.
- Motion adaptive deinterlacing reduces not only movement artifacts, also picture quality is improved by noise reduction. Also text and graphics could displayed without flickering
- Spatial deinterlacing avoids any movement artifacts, but noise reduction is not in action.
- Anarmorphic scaling (panoramaview / waterglassview) provides best quality for unproportional scales from 4:3 formats on 16:9 displays, or reverse. The choice for the right scale is done by automatically letterbox recognition in various formats.

Digital input

- Additional an digital input provides CCIR656 YUV signals (used for the SDI input board)
- A second 48 Bit digital input for flat foil cable is prepared (used for the DVI input board)

Box type pin headers

- All PC and video signals are available also on box type pin headers. This allows:
- Loop through (requires external signal amplifiers).
- Other placement of the receptacles or other connector types.

Gammacorrection

- The Hardware includes a free programmable 3 x 256 x 8 look up table for gammacorrection. The user could adjust the gamma value between 0-2.5. This feature is necessary since the color range of TFT and Plasma displays is different to common CRT monitors. Also color temperature is adjustable.

Magnification

- The input frame could be magnified in nearly all ranges horizontal and vertical independent. The position which frame part is to magnify is adjustable. This feature permits to display all input resolutions (ever user adjusted) fullscreen on every Display.

Panning

- Beside the above mentioned function to scale the input resolution (magnification or reduction) on any desired display resolution the active display area could be adjusted in position and size.

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Display Wall

- This functions allows to define a displaywall (eg. 5x4) and the position of each monitor within this wall. Cropping of the desired input image and up-scaling is done automatically for every input resolution. Also a horizontal and vertical border between each display is definable.

User

- The user adjusts all functions by a clearly structured OSD. Additionally a build in help function gives support at all menu items. This function can be switched off. The OSD can appear in various ways to meet the users requirements.
- The OSD Language can be changed. By now English and German is available.
- Control is done by IR remote or a small keyboard with 5 buttons, 2 status LED's and the IR receiver. The mounting of the keyboard is possible in horizontal or vertical way. The mounting direction is coded by a jumper.
- Also custom keyboards are possible (e.g.: with digital potentiometer).
- A remote control by RS232 (V24) is also implemented.

Displayadapter

- The digital output is programmable to 3x6 (18Bit), 3x8(24Bit) or in double pixel mode 6x6(36Bit) and 6x8(48Bit). This meets all common display requirements.
- To connect the many different displays available on today's market electrically and mechanically perfect, we deliver display specific adapter boards. These boards are placed on top of the MMIB1 board and provide the specific required outputs like 3.3V/5V parallel, LVDS or PanelLink outputs even a analog output board is available.
- The interfaceboard recognize the adapter board automatically and „knows“ which display is connected. Also display specific functions are now available in the OSD and the right display timing is selected.
- The special functionality of every display is supported. E.g.: Horizontal and vertical reverse, backlight brightness, view angle, dithering up to PLE (peak luminance enhancement)
- The adapter board also provides the power supply for the display (up to 1Ampere) and connectors for one or two backlight converters.
- One restriction is left: displays above 1280x1024 may be driven with a.) signals smaller or equal to 1280x1024 or b.) with their native resolution. Example: UXGA **cannot** be downscaled to SXGA+.

See our order informations for a list of panels we support.