Data Sheet

Cobra
Video Windowing

Features

- Single-slot VME video windowing card (dual-slot module for quad VGA on front panel)

- Accepts composite TV, S-Video or high resolution RGB inputs up to 1600 x 1200

- Fully scalable and moveable windows

- Crosspoint switch to select from 12 inputs

- Interlaced or non-interlaced inputs

- Programmable window brightness, contrast and color control

- Programmable window size and position

- DVI or analogue graphics input for overlays/background

- DVI or analogue video output

- Programmable output resolution

- Fully configurable over VME, RS-232 or Ethernet

- Compatible with X Windows and Microsoft Windows

- Screen capture (full screen or window) capability for printing or snapshot recording

- Digital video mixing

- Standalone 2U box-level product or VME card

- PMC site for expansion

- Alpha blending and video cross mixing (Cobra Ax variant)

Cobra Video Windowing

Cobra is a high-performance, multi-input, video windows processor that can accept up to 12 videos per card and select up to 4 for display as windows on a high-resolution, digital flat panel or analogue display. Video inputs can be TV, RS-170, RS-343, STANAG or high-resolution computer video up to 1600 x 1200, with considerable flexibility in the formats and video timings. In addition to videos an overlay or background high-resolution graphics signal may be input to the card as separate DVI or analogue RGB video. The card supports a wide variety of display configurations including quad-video, picture-in-picture, full-screen zoom and with the Cobra-Ax variant, alpha blending and cross mixing of video sources.

Cobra requires only power from the VME bus and may be completely controlled over the Ethernet, RS-232 or VME interfaces. Multiple video sources may be input and selected under software control for display in multiple windows. The output video may be displayed on a CRT, flat-panel monitor or projector, using either the analogue RGB output or, for optimum image quality, the direct digital DVI output.
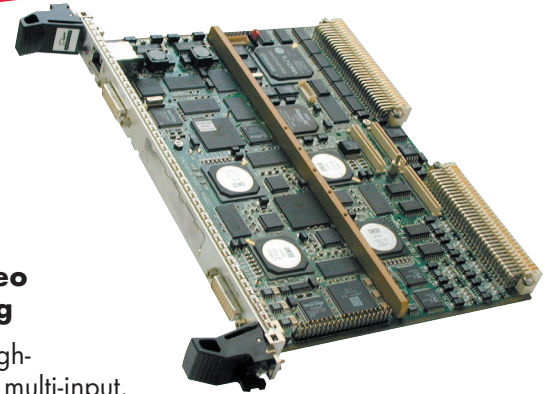
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Cobra Video Overlays

In addition to the multiple channels of video and RGB that are normally displayed as windows, Cobra has a separate input for graphics overlay or background. This may be driven from any industry-standard graphics card providing an RGB or DVI graphics video from resolutions of VGA up to UXGA (1600 x 1200). Chroma keying techniques are used to allow the graphics signal to overlay the video windows. This technique allows any X Windows or Microsoft Windows application to use the Cobra to provide video in a window, by keying the normal graphics output of the computer with the video windows picture created by the Cobra. When supplied with the optional desktop enclosure, Cobra forms a self-contained video windowing sub-system that may be used with any PC or workstation computer.

Because the graphics card is decoupled from the video display processor, there is considerable flexibility to choose a graphics hardware and software solution that supports the required target platform such as X Windows, OpenGL, VAPS, Intermaphics or ODS.

With Cobra handling multiple video inputs, other Primagraphics cards can provide radar scan-conversion display for a complete command and control solution. Cobra is compatible with products from Primagraphics' Hawkeye product family for VME or PMC solutions, allowing integrated video + radar + multi-layer graphics displays.

Cobra Screen Capture

A unique feature of Cobra is the capability to capture the video and graphics data for transfer to a remote host for printing or occasional recording. Cobra faithfully captures the full screen with no loss of detail, allowing screen shots to be captured, under software control, of an individual video window or the full screen.

Cobra Configuration and Versions

Graphics are input to the Cobra through an analogue RGB or DVI digital interface, for example from an external PMC graphics card. The video inputs arrive on the VME P2 connector or the front panel and up to four may be selected under software control for display as windows. A selected video source can be windowed to any position on the screen, or can be zoomed to full-screen. A complete system architecture typically comprises a host processor with a PMC graphics card and the Cobra Video Windows card.

The Cobra provides both a digital DVI output to drive flat-panel displays, and a standard analogue RGB output. Output resolution is up to 1600 x 1200 and is programmable via the built-in firmware.

Cobra is available in a number of variants. Cobra 400 supports up to 4 independently scaled and positioned video windows. Cobra 200 supports only two windows and Cobra 100 supports only a single video window.

Specifications

Video Inputs

- 12 video inputs configurable as non-interlaced RGB (3 videos) Composite (1 video) or S-Video (2 videos)
- Separate H & V syncs

Overlay/Background Graphics Input

- DVI or analogue RGB
- Resolutions from 640 x 480 up to 1600 x 1200 (Resolution up to 1280 x 1024 with Cobra Ax)

Video Windows

- Up to 4 video windows individually scaled and positioned on the output display
- Position, scaling, freeze frame, brightness and contrast adjustment

Video Mixing

- Digital video mixing
- Graphics input overlays video signal
- Alpha blending or video cross mixing with Cobra Ax variant

Video Output

- Output resolution selectable up to 1600 x 1200, non-interlaced (1280 x 1024 with Cobra Ax)
- Separate H&V syncs or sync-on-green
- For interlaced outputs, including STANAG 3350, consult factory

Connectors

- 10/100BASE-T/TX network interface
- DVI graphics input on front-panel
- DVI graphics and video output front-panel
- Video input and output through VME P2 connector
- Alternative versions of the card have video input on front-panel

VME Interface*

- A32/A24/A16 master and slave
- D64/32/16/8 master and slave
- System controller function

*Note: No VME interface on Cobra 100

Physical and Mechanical

- Single width 6U VME module
- Ruggedised to Level 2
- Conformal coating is optional
- PMC site for expansion

Electrical

- Power consumption: 30W typical for Cobra 400

Configuration and Control Interface

- Programmable power-on configuration control using supplied PC-based application program
- Command and control interface accessible over Ethernet, VME shared memory or RS-232

Environmental

- Operating Temp: -20°C to 75°C
- Storage Temp: -40°C to +100°C
- Shock: 40g peak sawtooth, 11ms
- Vibration: $0.002g^2$/ Hz 5 to 2000 Hz

Table 1: Ordering Information

Model Number	Number of Slots	Number of Windows	RGB (Note 1) Videos on Front-panel	Support for Alpha Blending and Cross Mixing
Cobra 400 - 778000	1	4	0	X
Cobra 200 - 778002	1	2	0	X
Cobra 100 - 778004	1	1	0	X
Cobra 400 - 778200	1	4	2	X
Cobra 200 - 778201	1	2	2	X
Cobra 100 - 778202	1	1	2	X
Cobra 400 - 778203	2	4	4	X
Cobra 200 - 778204	2	2	4	X
Cobra 100 - 778205	2	1	4	X
Cobra Ax - 778010	1	4	0	✔
Cobra Ax - 778210	1	4	2	✔
Cobra Ax - 778213	2	4	4	✔

Note (1)

1. An RGB input is three video signals and separate syncs. The video signals may be used as three software-selectable composite videos if required. Two RGB inputs may be configured as three s-video inputs.
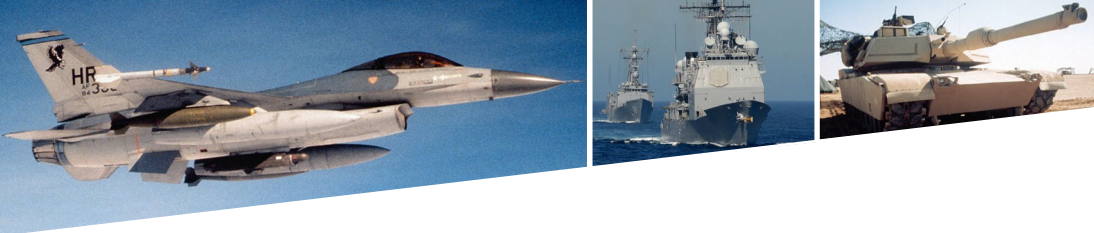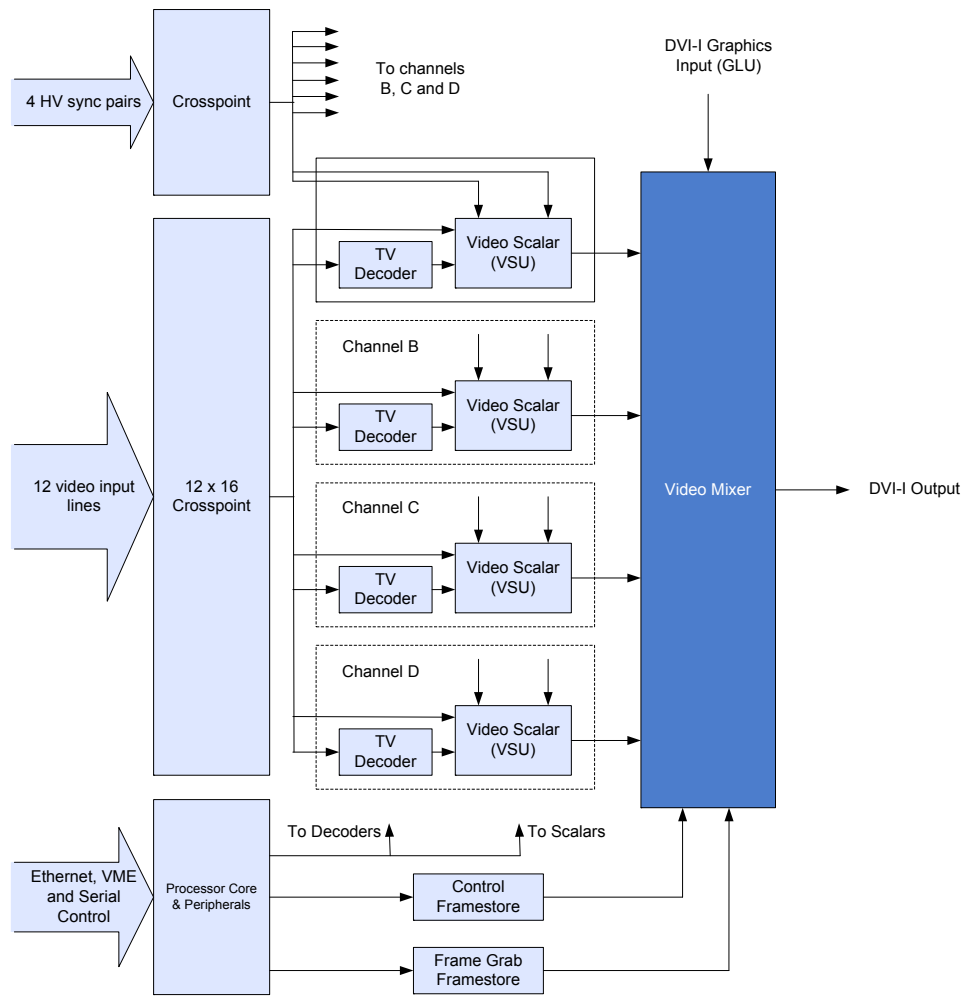
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Figure 1: Cobra Block Diagram

Warranty

This product has a one year warranty.

Contact Information

To find your appropriate sales representative:

Website: www.cwcembedded.com/sales

Email: sales@cwcembedded.com

Technical Support

For technical support:

Website: www.cwcembedded.com/support

Email: support1@cwcembedded.com

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