FlashBus® **MV**

High-performance, bus-mastering frame grabber family

Integral Technologies' FlashBus MV family sets the standard for bus-mastering PCI video frame grabbers. Whether the application is high-speed, precision-timed machine vision and inspection, or a simple, high-quality live video window and capture, there is a FlashBus MV product (Pro, Plus, or Lite) that fits your needs.

FlashBus MV Family Key Features

- **Bus-Mastering Performance**
  FlashBus MV's high-speed bus-mastering (up to 100 MBs/sec) delivers consecutive frames of video in real time to system memory or display memory while the CPU is free to operate on other applications.

- **High-Quality Video Capture**
  FlashBus MV provides unparalleled color and monochrome video capture—on the same board—with extremely low pixel jitter (less than 4 ns). FlashBus MV Pro offers RGB input and input LUTs for maximum clarity and control.

- **Unique Video Input Support**
  FlashBus MV Pro features dual-simultaneous live video inputs, ideal for inspection applications. It also supports progressive-scan cameras—30 and 60 fps—for ultimate video clarity in high-speed video capture applications.

- **Extensive Camera and I/O Control**
  All products in the FlashBus MV line have optically isolated triggers for flash units and TTL input and output triggers for camera control and remote capture control. The Pro has an on-board sync generator for camera

genlock and AVR support. Software controlled and 12V DC power output, integrated serial port for camera control, and programmable 12-bit D/A outputs allow for comprehensive camera and lens control.

- **Microcontroller Precision**
  FlashBus MV Pro and Plus incorporate an on-board microcontroller for precise synchronization, triggering, and serial I/O control. The microcontroller relieves the host CPU of servicing interrupts or counting sync and enables hardware video capture with no CPU intervention.

- **Extensive Software Support**
  Integral's software—the industry's most extensive—is common to all products in the FlashBus MV line. No frame grabber requires a unique version of the software. Support for all major operating systems and interfaces is included, as well as our own FlashBus FBG video capture and camera control application. An optional Software Developers Kit, filled with sample applications and source code, enables complete control and customization of the board. Additionally, FlashBus MV enjoys wide industry software support.

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FlashBus MV Pro

FlashBus MV Pro is one of the most feature-rich PCI video frame grabbers offered today. Standard are multiple video inputs—including RGB for absolute color clarity, multiple microcontroller-enabled I/O triggers (eight input, eight output, two strobe), multiple software-controlled 12-bit D/A outputs (0-10V DC), dual simultaneous live video inputs, on-board sync generator, and extensive camera support. There is no video frame grabber that offers as much as FlashBus MV Pro at such an aggressive price. This is the video frame grabber for machine vision, inspection, and imaging applications.

FlashBus MV Plus

FlashBus MV Plus has been designed for imaging and inspection applications where both aggressive low cost and multiple video inputs (color and grayscale) are required. FlashBus MV Plus offers six composite color inputs and three S-Video color inputs, as well as three precision, microcontroller-enabled input and output triggers.

FlashBus MV Lite

FlashBus MV Lite extends the product line by offering a high-performance, software-compatible frame grabber for absolutely cost-critical applications. FlashBus MV Lite includes up to three video inputs and an I/O and strobe trigger. Its small form factor (76mm x 125mm) and low power consumption make it ideal for embedded and portable systems. FlashBus MV Lite is fully compatible with the entire line of FlashBus MV software and hardware. It is ideal for photo ID and security applications.

Summary of Features

Feature		MV PRO	MV PLUS	MV LITE
Analog Video Input	RGB	1	0	0
	Composite	6	6	3
	RS-170	2	0	0
	S-Video	3	3	1
	NTSC and PAL software selectable	Yes	Yes	Yes
I/O Control	Programmable 12-bit D/A outputs (0-10 volts DC)	4	1	0
	Optically isolated output triggers for flash interface	2	1	1
	TTL input trigger	8	1	1
	TTL output triggers	8	1	1
	Programmable sync generator, external camera genlock and AVR support	Yes	No	No
Video Decoder	Genlocks to any NTSC/PAL video source	Yes	Yes	Yes
	24/16/15/8-bit video digitizing	Yes	Yes	Yes
	Square pixel digitizing resolutions for NTSC (12.27 MHz at 640 x 480) and PAL (14.75 MHz at 768 x 576)	Yes	Yes	Yes
	Digital control of offset, gain, brightness, contrast, hue, and saturation	Yes	Yes	Yes
	Software programmable offset and gain independently on R, G, and B	Yes	No	No
	EEPROM for storing configuation and calibration settings	Yes	Yes	Yes
Performance Video Throughput	Full-size, full-speed video delivery to and from system or VGA memory	Yes	Yes	Yes
	Full-bandwidth PCI bus master read and write (up to 132 MB/sec)	Yes	Yes	Yes
	Two simultaneous video DMA channels	Yes	No	No
External Camera Control	Software controllable, optically isolated, universal strobe interface	Yes	Yes	Yes
	On-board serial interface for camera or external device control	Yes	Yes	No
	12-volt DC-fused power output, resettable and on/off control	Yes	Yes	No

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Specifications

Video Inputs
• RGB, Composite, S-Video and RS-170/CCIR*
• NTSC & PAL software selectable
• Genlocks to any NTSC/PAL video source
• Software control of offset, gain, brightness, contrast, hue & saturation
• Under 4 ns pixel jitter
• 24/15/15 bpp RGB or YUV
• 4:2:2 color digitization
• 8-bit monochrome digitization

Video Scaling Processor
• Extremely high-quality still frame video capture
• Smooth, high-quality video scaling in both horizontal & vertical directions
• Supports hardware cropping for region-of-interest capture

Live Video Window
• Live video window resolution scalable up to 640 x 480 NTSC, 768 x 576 PAL
• Live video window displayed on VGA Windows desktop of up to 1600 x 1200

Video Throughput Performance
• Full-size, full-speed video delivery can be directed to system memory or VGA memory
• Full-bandwidth PCI bus master read and write (up to 132 Mbytes/sec)
• Video throughput unaffected by CPU activity

I/O Triggers & Camera Control
• Multiple input and output TTL triggers*
• Optically isolated output trigger for flash control
• Asynchronous camera support*
• Programmable Sync Generator*
• 12V DC camera power*
• Serial interface for camera control*
• Microcontroller for precise trigger timing*
• H, V, PLCK camera input

On-Board EEPROM
• Store configuration & calibration settings
• Store unique Serial Number & Checksum for software copy protection

Standards Approval
• FCC (Class B)
• CE (CISPR B)

Software
• MS Windows 3.1/9x/ME/NT/2000/XP and Linux drivers
• OS/2 Warp driver
• MS Windows MCI & AVI drivers
• TWAIN driver
• MS DirectDraw support
• FlashBus FBG video capture & camera control application
• Available SDK with sample code

Third-Party Software
• VisionBlox
• MVTec Halcon
• Image-Pro
• Aphelion
• Many photo ID applications

Ordering Information
• # 3045 FlashBus MV Pro
• # 3046 FlashBus MV Plus
• # 3047 FlashBus MV Lite
• # 3425 FlashBus MV SDK

Varies by model. See specifications.