

VM boards

Hybrid encoders

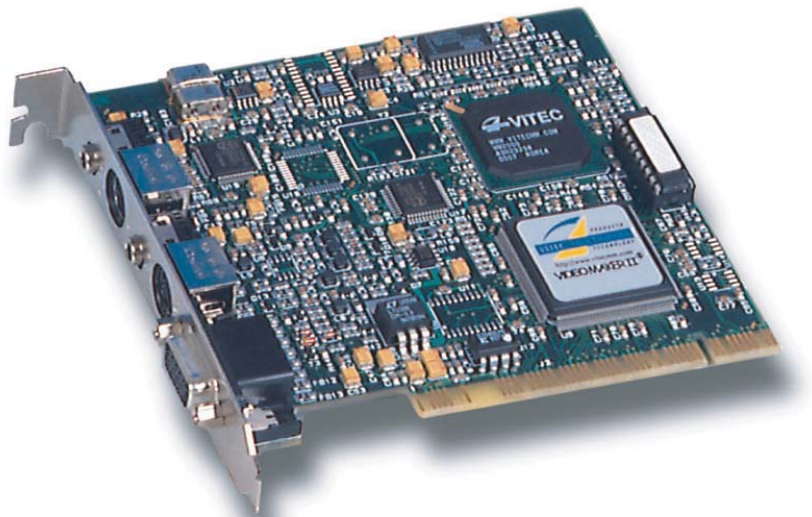
Capture and compression boards for developers
MPEG-4 MPEG-2 MPEG-1

Specifically designed for developers

The VM family of capture and compression boards makes low cost, high quality MPEG-4-2-1 encoding a reality for industrial and professional applications. The VM family, based on VITEC's Award Winning technology, takes full advantage of VITEC's proprietary MPEG compression chip, the VM2000™.

VITEC has developed this next generation of MPEG compression chip using a revolutionary concept : Hybrid Technology. The VM2000™ uses the full potential of your computer's processor, along with it's own powerful coprocessor and software capabilities. This combination results in a cost effective solution with unparalleled scalability.

This approach presents several significant advantages over the full hardware compression solutions, even those which include a full processor on board. These solutions can quickly become outdated with a simple advance in technology, whereas the VM family's technology will continue to evolve, while never outpacing the hardware design.



Key benefits of the hybrid architecture

- **Increasing Performance And Features Over Time**
When a faster PC is used, VM will run with higher quality and new features. This is not the case with other products on the market.
- **Easy And Economic Upgrades**
No need to buy a new board each time a new compression algorithm comes to the market (ex : MPEG-4). Just buy and download a new software upgrade and run it with the VM board. The overall cost over time is much lower.
- **Extended Product Life**
A developer does not need to buy a new board and invest time and money in a new development each time the next generation of encoding algorithm comes to the market.
- **Consistent Installed Base**
A VAR or SI can upgrade its installed base of equipment by a simple upgrade and keep a constant hardware base, which is much easier for maintenance.
- **Cost Effective**
The hybrid approach requires far less silicon than the full hardware solution and consumes less power.

TECHNICAL SPECIFICATIONS

4 VM boards	VM2-1	VM2-2	VM4-1	VM4-2
	MPEG-1 SIF	MPEG-2-1 FD1, SIF	MPEG-4-1 CIF/SIF	MPEG-4-2-1 FD1, FD1, SIF

Inputs / Outputs	Video Formats	NTSC/PAL/SECAM	NTSC/PAL/SECAM	NTSC/PAL/SECAM	NTSC/PAL/SECAM
	Video Inputs	4 composite or 2 S-Video	4 composite or 2 S-Video	4 composite or 2 S-Video	4 composite or 2 S-Video
	Audio Inputs	1 Mini Jack Stereo	1 Mini Jack Stereo	1 Mini Jack Stereo	1 Mini Jack Stereo
	Video Output	Composite, S-Video, RGBS	Composite, S-Video, RGBS	Composite, S-Video, RGBS	Composite, S-Video, RGBS
	Audio Output	1 Mini Jack Stereo	1 Mini Jack Stereo	1 Mini Jack Stereo	1 Mini Jack Stereo
	Preview on VGA	yes	yes	yes	yes
	Video and Audio Pass-Through	yes	yes	yes	yes

Video Encoding	MPEG-1	SIF, QSIF	SIF, QSIF	SIF, QSIF	SIF, QSIF
	MPEG-2	no	FD1, 2/3D1, HD1, SIF, QSIF	no	FD1, 2/3D1, HD1, SIF, QSIF
	MPEG-4	no	no	CIF, QCIF	FD1, 2/3D1, HD1, CIF, QCIF
	MPEG-4 ISMA Level 0 and 1	no	no	yes	yes
	MPEG-4 profile	-	-	ASP / level 0-5 (1 object)	ASP / level 0-5 (1 object)
	Elementary streams MPEG-1&2	yes	yes	yes	yes
	Elementary streams MPEG-4	-	-	no	no
	MPEG-1 System stream	yes	yes	yes	yes
	MPEG-2 PS and TS (SPTS)	-	yes	-	yes
	MPEG-4 System stream	-	-	yes	yes
	VCD 2.0, XVCD compliance	yes	yes	yes	yes
	DVD, SVCD compliance	no	yes	no	yes
	Frame rate	29.97 (NTSC) 25 (PAL/SECAM)	29.97 (NTSC) 25 (PAL/SECAM)	29.97 (NTSC) 25 (PAL/SECAM)	29.97 (NTSC) 25 (PAL/SECAM)
	Adjustable frame rate	yes (skip N frames)	yes (skip N frames)	yes	yes
	Bitrate MPEG-1	128 Kbit/s to 3 Mbit/s	128 Kbit/s to 3 Mbit/s	128 Kbit/s to 3 Mbit/s	128 Kbit/s to 3 Mbit/s
	Bitrate MPEG-2	-	1 to 15 Mbit/s	-	1 to 15 Mbit/s
	Bitrate MPEG-4	-	-	64 Kbit/s to 6 Mbit/s	64 Kbit/s to 6 Mbit/s
	Bitrate regulat° mode MPEG-1	CBR, VBR	CBR, VBR	CBR, VBR	CBR, VBR
	Bitrate regulat° mode MPEG-2	-	CBR, VBR	-	CBR, VBR
	Bitrate regulat° mode MPEG-4	-	-	CBR, VBR, CFR	CBR, VBR, CFR
VBR with Average and Max settings	yes	yes	yes	yes	
VBR with Fixed Quantizer (MPEG2)	no	yes	no	yes	
GOP definition	IIII, IP, IBP, IBBP, ...	IIII, IP, IBP, IBBP, ...	IIII, IP, IBP, IBBP, ...	IIII, IP, IBP, IBBP, ...	
IBP distance settings, closed GOP	yes	yes	yes	yes	
Scene Change Detection	yes	yes	yes	yes	

Audio Encoding	MPEG-1 Layer 1 & 2	yes	yes	yes	yes
	PCM	yes	yes	yes	yes
	AC-3	yes	yes	yes	yes
	AAC Low Complexity	-	no	yes	yes
	Sample rate	32, 44.1, 48 KHz	32, 44.1, 48 KHz	22, 32, 44.1, 48 KHz	22, 32, 44.1, 48 KHz
	Bits per sample	16 bits	16 bits	16 bits	16 bits
	Bitrate MPEG-1 audio	32 to 384 Kbit/s	32 to 384 Kbit/s	32 to 384 Kbit/s	32 to 384 Kbit/s
	Bitrate AC3	96 to 640 Kbit/s	96 to 640 Kbit/s	96 to 640 Kbit/s	96 to 640 Kbit/s
	Bitrate AAC-LC	-	-	8 to 384 Kbit/s (96 Kbit/s for CD quality)	8 to 384 Kbit/s (96 Kbit/s for CD quality)
	Audio Mode	Mono, Stereo, Dual Stereo Joint Stereo	Mono, Stereo, Dual Stereo Joint Stereo	Mono, Stereo, Dual Stereo Joint Stereo	Mono, Stereo, Dual Stereo Joint Stereo

4 VM boards

VM2-1
MPEG-1
SIF

VM2-2
MPEG-2-1
FD1, SIF

VM4-1
MPEG-4-1
CIF/SIF

VM4-2
MPEG-4-2-1
FD1, FD1, SIF

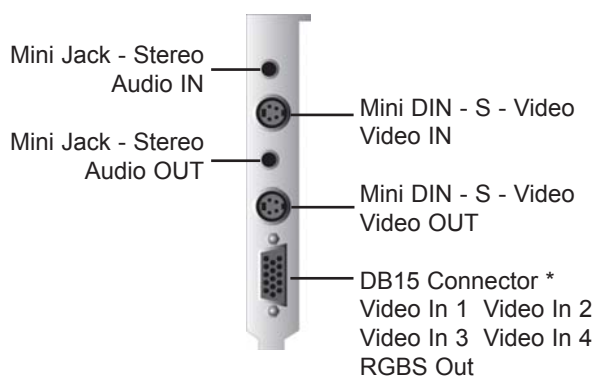
Signal calibrat°	Brightness, contrast, Saturation, Hue adjustments	yes	yes	yes	yes
	Audio Level Adjustment	yes	yes	yes	yes

Still image	Typical Resolutions (can be adjusted)	720x576, 352x288 (PAL/S) 720x480, 352x240 (NTSC)	720x576, 352x288 (PAL/S) 720x480, 352x240 (NTSC)	720x576, 352x288 (PAL/S) 720x480, 352x240 (NTSC)	720x576, 352x288 (PAL/S) 720x480, 352x240 (NTSC)
	Field or Frame (2 fields) Capture	yes	yes	yes	yes

Advanced features (Windows only)	Still image capture while enco- ding	yes	yes	yes	yes
	Audiometer overlaid on pre- view	yes	yes	yes	yes
	Status overlay on preview win- dow	yes	yes	yes	yes
	Pause/Resume mode	yes	yes	yes	yes
	Split mode (back to back files)	yes	yes	yes	yes
	Skip frame mode (reduced frame rate & regular playback)	yes (win + linux)	yes (win + linux)	yes (win + linux)	yes (win + linux)
	Drop frame mode (reduced frame rate & accelerated play- back)	yes	yes	yes	yes
	24/7 Very Long Encoding	yes (win + linux)	yes (win + linux)	yes (win + linux)	yes (win + linux)
Uncompressed Capture Mode	yes	yes	yes	yes	

Developers resources	Operating Systems	Windows XP, 2000 Linux RedHat, SuSE, ...	Windows XP, 2000 Linux RedHat, SuSE, ...	Windows XP, 2000 Linux RedHat, SuSE, ...	Windows XP, 2000 Linux RedHat, SuSE, ...
	Development Kits	Low level SDK/API LiveWire framework Demo applic. source code	Low level SDK/API LiveWire framework Demo applic. source code	Low level SDK/API LiveWire framework Demo applic. source code	Low level SDK/API LiveWire framework Demo applic. source code

Recommended Configuration	> PIII - 500 MHz 128 MB RAM (PC133)	> P4 - 1.8 GHz 256 MB RAM	> P4 - 1.4 GHz 256 MB RAM	> P4 - 3 GHz 256 MB RAM
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* Up to 4 composite Video (or 2 S-video) inputs can be handled through the DB15 connector. Switching from one to the other is made by software.

The VM family boards come with an SDK. This SDK uses the new LiveWire™ development framework which provides a set of ready to use connectable components leading to a drastic cut of product development time. LiveWire™ has many advantages. It :

- ensures highly flexible, scalable, truly customizable solutions,
- is designed to allow well-structured parallel development,
- allows to concentrate on solution specific tasks,
- overcomes the limitations of existing technologies such as DirectShow and COM in general,
- allows live reconnection of functional components without interruption of active processes,
- is compatible with Win32, COM, scriptable languages (Visual Basic, Java Script,...),
- takes advantages of XML based technologies and uses the Apache Xerces XML parser,
- provides different levels of SDK abstraction, from high level API for scripting languages through Win32 API for limited backward compatibility to the low level set of COM Interfaces for advanced development in C++.

LiveWire™ parts :

- LiveWire Core
- LiveWire Components
- LiveWire XML-based Profiles
- LiveWire Custom Components Wizard for MS Visual Studio C++
- LiveWire Multiplatform Shell
- LiveWire SDK
- LiveWire Tutorial and Samples

To start using LiveWire™ based products, all you have to do is to create an instance of Assembly Container, initialize it with XML-based Configuration Profile and run. Different sophisticated profiles can be created without extensive programming, using Integrated Property Page or directly by editing the XML file in the text editor of your choice. Components parameters persistence comes then automatically.

Very little programming is needed to use advanced features, such as Command Scheduling and Atomic Command Blocks. With a few extra lines of code you can complete an application capable of running execution scripts with frame accurate precision.

Custom LiveWire™ components creation is simplified by Wizard and they can be easily integrated into existing Assemblies.

The most important advantage of the SDK is the layered structure of the LiveWire™ framework which allows a quick development cycle.



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