



**Video Electronics Standards Association**

2150 North First Street, Suite 440

San Jose, CA 95131-2020

Phone: (408) 435-0333 Fax: (408) 435-8225

# Monitor Timing Specifications

## **VESA and Industry Standards and Guidelines for Computer Display Monitor Timing Version 1.0, Revision 0.8**

**Adoption Date: September 17, 1998**

This document includes all current VESA Monitor Timing Standards & Guidelines. 'Guidelines' are subjected to the same VESA review and approval process as 'Standards', but are designated as 'Guidelines' to ease concerns on the part of some VESA members that VESA is 'endorsing' these timing standards. 'Guidelines' designations are typically used for lower resolutions or lower refresh rates which are in common industry use in lower-performance systems. For reference, this document also includes a number of industry standard timings (de-facto standards) for the computer industry.

This document is the primary means of distribution for all VESA Monitor Timing Standards and Guidelines. The standards and guidelines covered by this document are outlined on the following page.

**Standards and Guidelines Summary**

<b>Resolution</b>	<b>Refresh Rate</b>	<b>Horizontal Frequency</b>	<b>Pixel Frequency</b>	<b>Standard Type</b>	<b>Original Document #</b>	<b>Standard Date</b>
640 x 350	85 Hz	37.9 kHz	31.500 MHz	VESA Standard	VDMTPROP	3/1/96
640 x 400	85 Hz	37.9 kHz	31.500 MHz	VESA Standard	VDMTPROP	3/1/96
720 x 400	85 Hz	37.9 kHz	35.500 MHz	VESA Standard	VDMTPROP	3/1/96
640 x 480	60 Hz	31.5 kHz	25.175 MHz	Industry Standard	n/a	n/a
	72 Hz	37.9 kHz	31.500 MHz	VESA Standard	VS901101	12/2/92
	75 Hz	37.5 kHz	31.500 MHz	VESA Standard	VDMT75HZ	10/4/93
	85 Hz	43.3 kHz	36.000 MHz	VESA Standard	VDMTPROP	3/1/96
800 x 600	56 Hz	35.1 kHz	36.000 MHz	VESA Guidelines	VG900601	8/6/90
	60 Hz	37.9 kHz	40.000 MHz	VESA Guidelines	VG900602	8/6/90
	72 Hz	48.1 kHz	50.000 MHz	VESA Standard	VS900603A	8/6/90
	75 Hz	46.9 kHz	49.500 MHz	VESA Standard	VDMT75HZ	10/4/93
	85 Hz	53.7 kHz	56.250 MHz	VESA Standard	VDMTPROP	3/1/96
1024 x 768	43 Hz Interlaced	35.5 kHz	44.900 MHz	Industry Standard	n/a	n/a
	60 Hz	48.4 kHz	65.000 MHz	VESA Guidelines	VG901101A	9/10/91
	70 Hz	56.5 kHz	75.000 MHz	VESA Standard	VS910801-2	8/9/91
	75 Hz	60.0 kHz	78.750 MHz	VESA Standard	VDMT75HZ	10/4/93
	85 Hz	68.7 kHz	94.500 MHz	VESA Standard	VDMTPROP	3/1/96
1152 x 864	75 Hz	67.5 kHz	108.000 MHz	VESA Standard	VDMTPROP	3/1/96
1280 x 960	60 Hz	60.0 kHz	108.000 MHz	VESA Standard	VDMTPROP	3/1/96
	85 Hz	85.9 kHz	148.500 MHz	VESA Standard	VDMTPROP	3/1/96
1280 x 1024	60 Hz	64.0 kHz	108.000 MHz	VESA Standard	VDMTREV	12/18/96
	75 Hz	80.0 kHz	135.000 MHz	VESA Standard	VDMT75HZ	10/4/93
	85 Hz	91.1 kHz	157.500 MHz	VESA Standard	VDMTPROP	3/1/96
1600 x 1200	60 Hz	75.0 kHz	162.000 MHz	VESA Standard	VDMTREV	12/18/96
	65 Hz	81.3 kHz	175.500 MHz	VESA Standard	VDMTREV	12/18/96
	70 Hz	87.5 kHz	189.000 MHz	VESA Standard	VDMTREV	12/18/96
	75 Hz	93.8 kHz	202.500 MHz	VESA Standard	VDMTREV	12/18/96
	85 Hz	106.3 kHz	229.500 MHz	VESA Standard	VDMTREV	12/18/96
1792 x 1344	60 Hz	83.64 kHz	204.750 MHz	VESA Standard	VDMTREV	9/17/98
	75 Hz	106.27 kHz	261.000 MHz	VESA Standard	VDMTREV	9/17/98
1856 x 1392	60 Hz	86.33 kHz	218.250 MHz	VESA Standard	VDMTREV	9/17/98
	75 Hz	112.50 kHz	288.000 MHz	VESA Standard	VDMTREV	9/17/98
1920 x 1440	60 Hz	90.000 kHz	234.000 MHz	VESA Standard	VDMTREV	9/17/98
	75 Hz	112.50 kHz	297.000 MHz	VESA Standard	VDMTREV	9/17/98

**Intellectual Property**

© Copyright 1994, 1995, 1996, 1998 - Video Electronics Standards Association. All other rights reserved.

While every precaution has been taken in the preparation of this standard, VESA and its contributors assume no responsibility for errors or omissions, and make no warranties, expressed or implied, of functionality or suitability for any purpose.

**Trademarks**

All trademarks used in this document are property of their respective owners. VESA is a trademark of the Video Electronics Standards Association.

**Patents**

VESA proposal and standards documents are adopted by the Video Electronics Standards Association without regard to whether their adoption may involve patents on articles, materials, or processes. Such adoption does not assume any liability to any patent owner, nor does it assume any obligation whatever to parties adopting the proposal or standards document.

**Support**

If you have a product which incorporates any of the standards in this document, you should ask the company that manufactured your product for assistance. If you are a display or controller manufacturer, VESA can assist you with any clarifications you may require. All comments or reported errors should be submitted in writing to VESA using one of the following methods:

VESA FAX: 408-435-8225, Technical Support E-Mail: [support@vesa.org](mailto:support@vesa.org) Web Page: <http://www.vesa.org>  
 Mail: Video Electronics Standards Association, 2150 N. First Street, Suite 440, San Jose, CA 95131-2029

**Revision History**

Version 1.0	Revision 0.0	9/12/94	Initial Release
Version 1.0	Revision 0.1	10/10/94	Fixed sync polarity of 1024x768 at 60 and 70 Hz
Version 1.0	Revision 0.2	11/4/94	Removed page numbers so new timings can be added in the future
Version 1.0	Revision 0.3	2/16/95	Added notes & comments to clarify timing of interlaced modes
Version 1.0	Revision 0.4	5/4/95	Fixed miscellaneous typos
Version 1.0	Revision 0.5	6/14/95	Added EDID IDs for DDC; Fixed 1024x768 Interlace vertical times
Version 1.0	Revision 0.6	4/10/96	Added BIOS Mode #'s; Fixed miscellaneous typos
Version 1.0	Revision 0.6a	9/8/96	Added new modes from VDMTPROP V1.0 R0.6
Version 1.0	Revision 0.7	12/18/96	passed 3/96 (85 Hz standards, 1152x864@75, 1280x960@60)
Version 1.0	Revision 0.8	7/22/98	Reformatted document source to Word 6 for electronic distribution
			Added new modes from VDMTREV V1.0 R0.8
			passed 12/96 (1280x1024@60, 1600x1200@60, 65, 70, 75 and 85)
			Added 1792x1344, 1856x1392, and 1920x1440, all at 60 Hz and 75 Hz. Corrected EDID code for 1600x1200@85 Hz

**Contents**

Summary .....	Page 1
Intellectual Property.....	Page 3
Trademarks .....	Page 3
Patents .....	Page 3
Support .....	Page 3
Revision History .....	Page 3
Timing Specifications for 640x350 at 85 Hz .....	Page 4
Timing Specifications for 640x400 at 85 Hz .....	Page 5
Timing Specifications for 720x400 at 85 Hz .....	Page 6
Timing Specifications for 640x480 at 60, 72, 75, and 85 Hz .....	Page 7
Timing Specifications for 800x600 at 56, 60, 72, 75, and 85 Hz.....	Page 11
Timing Specifications for 1024x768 at 43, 60, 70, 75, and 85 Hz.....	Page 16
Timing Specifications for 1152x864 at 75 Hz .....	Page 21
Timing Specifications for 1280x960 at 60 and 85 Hz .....	Page 22
Timing Specifications for 1280x1024 at 60, 75 and 85 Hz .....	Page 23
Timing Specifications for 1600x1200 at 60, 65, 70, 75 and 85 Hz.....	Page 27
Timing Specifications for 1792x1344 at 60 and 75 Hz.....	Page 32
Timing Specifications for 1856x1392 at 60 and 75 Hz.....	Page 34
Timing Specifications for 1920x1440 at 60 and 75 Hz.....	Page 36

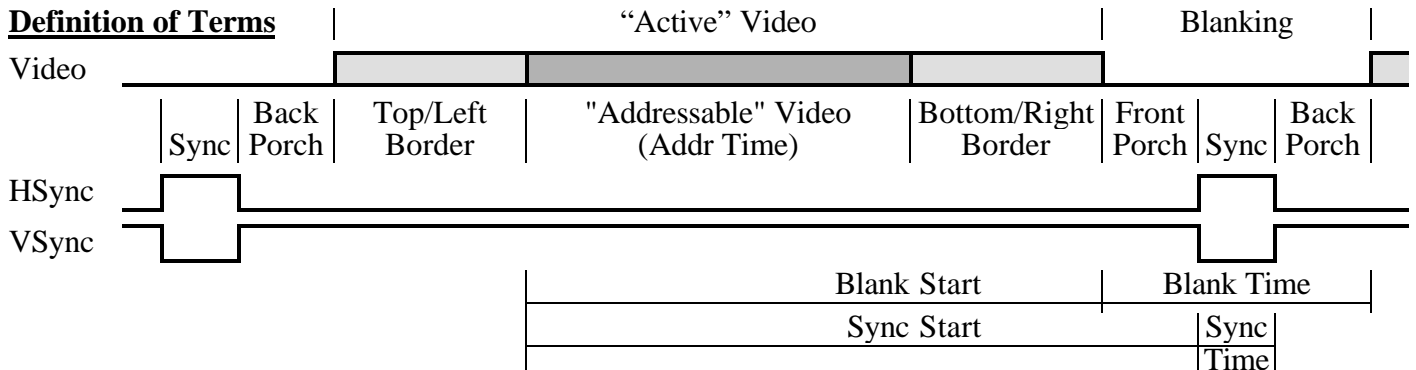
**VESA MONITOR TIMING STANDARD**

Proposed: 5/7/95  
 Adopted: 3/1/96  
 Resolution: 640 x 350 at 85 Hz (non-interlaced)  
 EDID ID: n/a

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>640 x 350 @ 85Hz;</b>		
Hor Pixels	=	<b>640;</b>	// Pixels	
Ver Pixels	=	<b>350;</b>	// Lines	
Hor Frequency	=	37.861;	// KHz	= 26.4 usec / line
Ver Frequency	=	85.080;	// Hz	= 11.8 msec / frame
Pixel Clock	=	<b>31.500;</b>	// MHz	= 31.7 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 254.0 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase =	3.8 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank =	23.1% of HTotal
Ver Sync Polarity	=	<b>NEGATIVE;</b>	// VBlank =	21.3% of VTotal
Hor Total Time	=	26.413;	// (usec)	= 104 chars = 832 Pixels
Hor Addr Time	=	20.317;	// (usec)	= 80 chars = 640 Pixels
Hor Blank Start	=	20.317;	// (usec)	= 80 chars = 640 Pixels
Hor Blank Time	=	6.095;	// (usec)	= 24 chars = 192 Pixels
Hor Sync Start	=	21.333;	// (usec)	= 84 chars = 672 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	1.016;	// (usec)	= 4 chars = 32 Pixels
Hor Sync Time	=	2.032;	// (usec)	= 8 chars = 64 Pixels
// H Back Porch	=	3.048;	// (usec)	= 12 chars = 96 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	11.754;	// (msec)	= 445 lines HT - (1.06xHA)
Ver Addr Time	=	9.244;	// (msec)	= 350 lines = 4.88
Ver Blank Start	=	9.244;	// (msec)	= 350 lines
Ver Blank Time	=	2.509;	// (msec)	= 95 lines
Ver Sync Start	=	10.090;	// (msec)	= 382 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.845;	// (msec)	= 32 lines
Ver Sync Time	=	0.079;	// (msec)	= 3 lines
// V Back Porch	=	1.585;	// (msec)	= 60 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



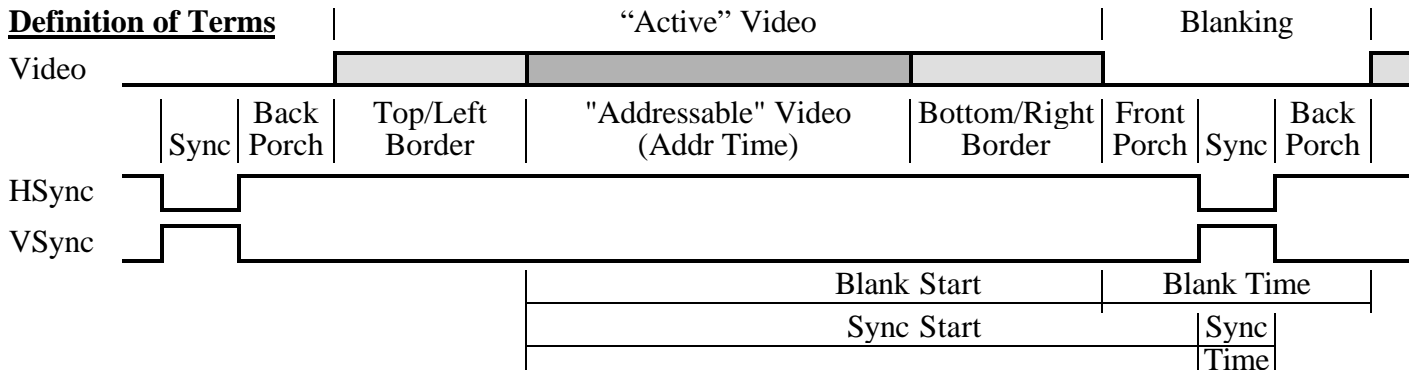
**VESA MONITOR TIMING STANDARD**

Proposed: 5/7/95  
 Adopted: 3/1/96  
 Resolution: 640 x 400 at 85 Hz (non-interlaced)  
 EDID ID: n/a

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>640 x 400 @ 85Hz;</b>		
Hor Pixels	=	<b>640;</b>	// Pixels	
Ver Pixels	=	<b>400;</b>	// Lines	
Hor Frequency	=	37.861;	// KHz	= 26.4 usec / line
Ver Frequency	=	85.080;	// Hz	= 11.8 msec / frame
Pixel Clock	=	<b>31.500;</b>	// MHz	= 31.7 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 254.0 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase =	3.8 %
Hor Sync Polarity	=	<b>NEGATIVE;</b>	// HBlank =	23.1% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank =	10.1% of VTotal
Hor Total Time	=	26.413;	// (usec)	= 104 chars = 832 Pixels
Hor Addr Time	=	20.317;	// (usec)	= 80 chars = 640 Pixels
Hor Blank Start	=	20.317;	// (usec)	= 80 chars = 640 Pixels
Hor Blank Time	=	6.095;	// (usec)	= 24 chars = 192 Pixels
Hor Sync Start	=	21.333;	// (usec)	= 84 chars = 672 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	1.016;	// (usec)	= 4 chars = 32 Pixels
Hor Sync Time	=	2.032;	// (usec)	= 8 chars = 64 Pixels
// H Back Porch	=	3.048;	// (usec)	= 12 chars = 96 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	11.754;	// (msec)	= 445 lines HT – (1.06xHA)
Ver Addr Time	=	10.565;	// (msec)	= 400 lines = 4.88
Ver Blank Start	=	10.565;	// (msec)	= 400 lines
Ver Blank Time	=	1.189;	// (msec)	= 45 lines
Ver Sync Start	=	10.591;	// (msec)	= 401 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.026;	// (msec)	= 1 lines
Ver Sync Time	=	0.079;	// (msec)	= 3 lines
// V Back Porch	=	1.083;	// (msec)	= 41 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



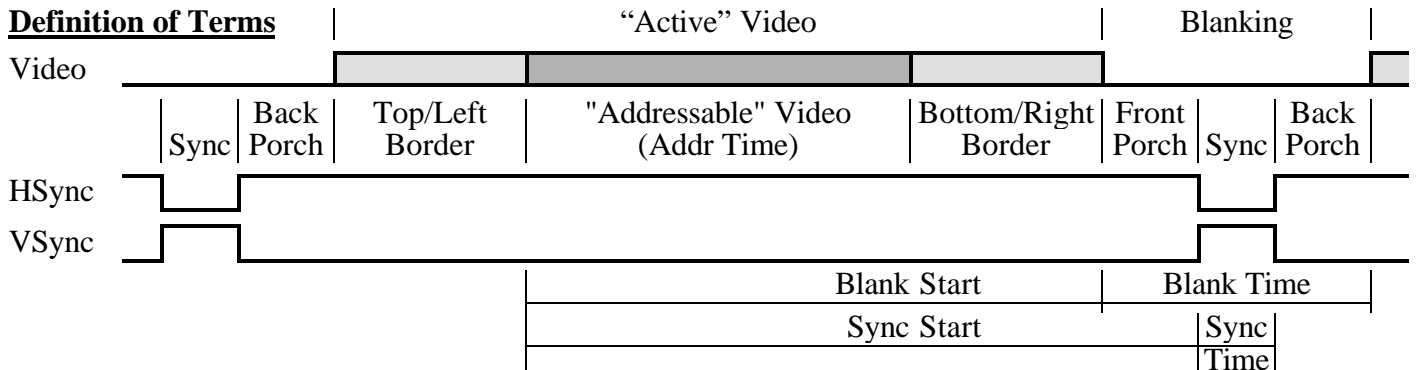
**VESA MONITOR TIMING STANDARD**

Proposed: 5/7/95  
 Adopted: 3/1/96  
 Resolution: 720 x 400 at 85 Hz (non-interlaced)  
 EDID ID: n/a

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>720 x 400 @ 85Hz;</b>		
Hor Pixels	=	<b>720;</b>	// Pixels	
Ver Pixels	=	<b>400;</b>	// Lines	
Hor Frequency	=	37.927;	// KHz	= 26.4 usec / line
Ver Frequency	=	85.039;	// Hz	= 11.8 msec / frame
Pixel Clock	=	<b>35.500;</b>	// MHz	= 28.2 nsec ± 0.5%
Character Width	=	<b>9;</b>	// Pixels	= 253.5 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase =	3.8 %
Hor Sync Polarity	=	<b>NEGATIVE;</b>	// HBlank =	23.1% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank =	10.3% of VTtotal
Hor Total Time	=	26.366;	// (usec)	= 104 chars = 936 Pixels
Hor Addr Time	=	20.282;	// (usec)	= 80 chars = 720 Pixels
Hor Blank Start	=	20.282;	// (usec)	= 80 chars = 720 Pixels
Hor Blank Time	=	6.085;	// (usec)	= 24 chars = 216 Pixels
Hor Sync Start	=	21.296;	// (usec)	= 84 chars = 756 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	1.014;	// (usec)	= 4 chars = 36 Pixels
Hor Sync Time	=	2.028;	// (usec)	= 8 chars = 72 Pixels
// H Back Porch	=	3.042;	// (usec)	= 12 chars = 108 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	11.759;	// (msec)	= 446 lines HT – (1.06xHA)
Ver Addr Time	=	10.546;	// (msec)	= 400 lines = 4.87
Ver Blank Start	=	10.546;	// (msec)	= 400 lines
Ver Blank Time	=	1.213;	// (msec)	= 46 lines
Ver Sync Start	=	10.573;	// (msec)	= 401 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.026;	// (msec)	= 1 lines
Ver Sync Time	=	0.079;	// (msec)	= 3 lines
// V Back Porch	=	1.107;	// (msec)	= 42 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



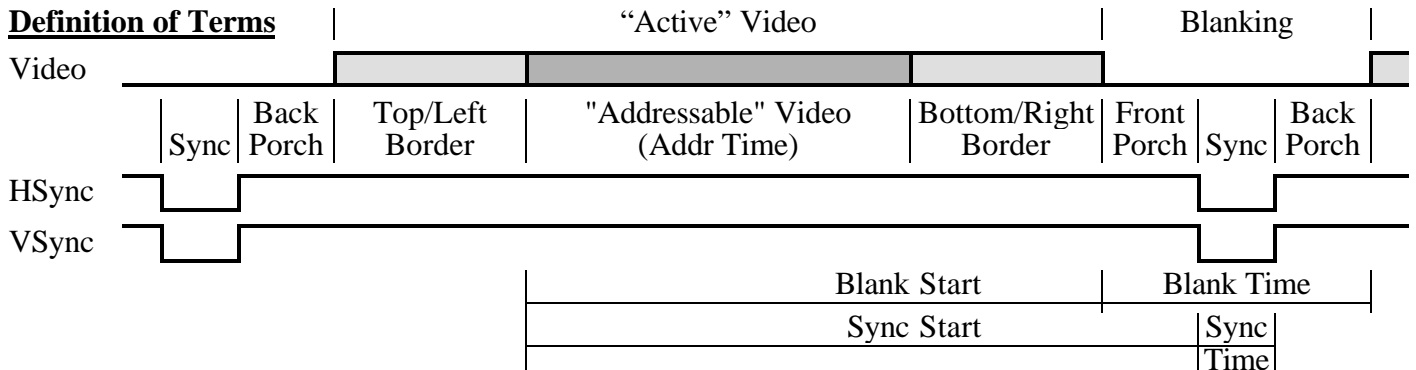
**VESA MONITOR TIMING STANDARD**

Adopted: n/a **\*\* For Reference Only - Not VESA Standard \*\***  
 Resolution: 640 x 480 at 60 Hz (non-interlaced)  
 EDID ID: 031h, 040h  
 BIOS Modes: 11h, 12h, 101h, 110h, 111h, & 112h (1, 4, 8, 15, 16, & 24 bpp)

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>640 x 480 @ 60Hz;</b>		
Hor Pixels	=	<b>640;</b>	// Pixels	
Ver Pixels	=	<b>480;</b>	// Lines	
Hor Frequency	=	31.469;	// KHz	= 31.8 usec / line
Ver Frequency	=	59.940;	// Hz	= 16.7 msec / frame
Pixel Clock	=	<b>25.175;</b>	// MHz	= 39.7 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 317.8 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase =	2.0 %
Hor Sync Polarity	=	<b>NEGATIVE;</b>	// HBlank =	18.0% of HTotal
Ver Sync Polarity	=	<b>NEGATIVE;</b>	// VBlank =	5.5% of VTotal
Hor Total Time	=	31.778;	// (usec)	= 100 chars = 800 Pixels
Hor Addr Time	=	25.422;	// (usec)	= 80 chars = 640 Pixels
Hor Blank Start	=	25.740;	// (usec)	= 81 chars = 648 Pixels
Hor Blank Time	=	5.720;	// (usec)	= 18 chars = 144 Pixels
Hor Sync Start	=	26.058;	// (usec)	= 82 chars = 656 Pixels
// H Right Border	=	0.318;	// (usec)	= 1 chars = 8 Pixels
// H Front Porch	=	0.318;	// (usec)	= 1 chars = 8 Pixels
Hor Sync Time	=	3.813;	// (usec)	= 12 chars = 96 Pixels
// H Back Porch	=	1.589;	// (usec)	= 5 chars = 40 Pixels
// H Left Border	=	0.318;	// (usec)	= 1 chars = 8 Pixels
Ver Total Time	=	16.683;	// (msec)	= 525 lines HT – (1.06xHA)
Ver Addr Time	=	15.253;	// (msec)	= 480 lines = 4.83
Ver Blank Start	=	15.507;	// (msec)	= 488 lines
Ver Blank Time	=	0.922;	// (msec)	= 29 lines
Ver Sync Start	=	15.571;	// (msec)	= 490 lines
// V Bottom Border	=	0.254;	// (msec)	= 8 lines
// V Front Porch	=	0.064;	// (msec)	= 2 lines
Ver Sync Time	=	0.064;	// (msec)	= 2 lines
// V Back Porch	=	0.794;	// (msec)	= 25 lines
// V Top Border	=	0.254;	// (msec)	= 8 lines

**Definition of Terms**



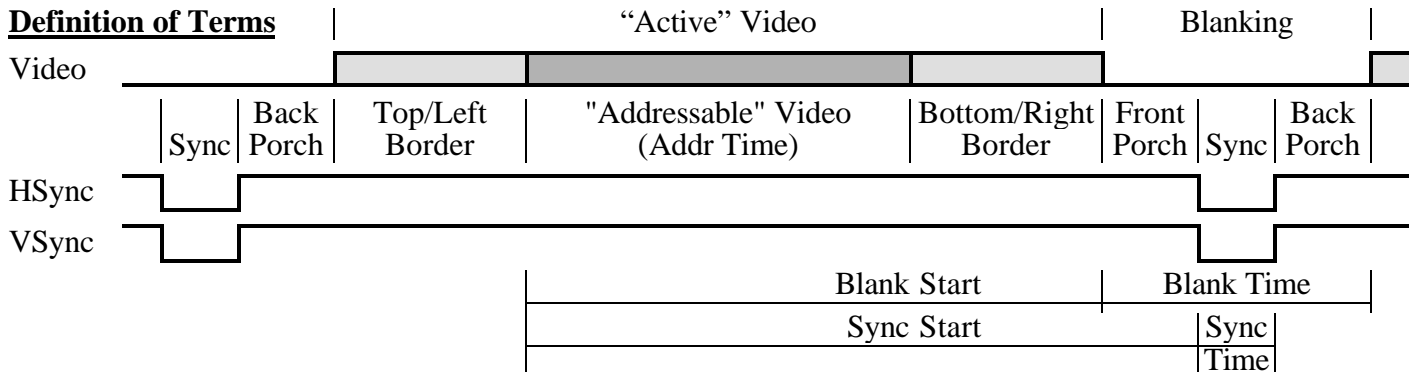
**VESA MONITOR TIMING STANDARD**

Adopted: 11/11/90 (VESA #901101)  
 Resolution: 640 x 480 at 72 Hz (non-interlaced)  
 EDID ID: 031h, 04Ch  
 BIOS Modes: 11h, 12h, 101h, 110h, 111h, & 112h (1, 4, 8, 15, 16, & 24 bpp)

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	= <b>640 x 480 @ 72Hz;</b>		
Hor Pixels	= <b>640;</b>	// Pixels	
Ver Pixels	= <b>480;</b>	// Lines	
Hor Frequency	= 37.861;	// KHz	= 26.4 usec / line
Ver Frequency	= 72.809;	// Hz	= 13.7 msec / frame
Pixel Clock	= <b>31.500;</b>	// MHz	= 31.7 nsec ± 0.5%
Character Width	= <b>8;</b>	// Pixels	= 254.0 nsec
Scan Type	= <b>NONINTERLACED;</b>	// H Phase	= 6.3 %
Hor Sync Polarity	= <b>NEGATIVE;</b>	// HBlank	= 21.2% of HTotal
Ver Sync Polarity	= <b>NEGATIVE;</b>	// VBlank	= 4.6% of VTotal
Hor Total Time	= 26.413;	// (usec)	= 104 chars = 832 Pixels
Hor Addr Time	= 20.317;	// (usec)	= 80 chars = 640 Pixels
Hor Blank Start	= 20.571;	// (usec)	= 81 chars = 648 Pixels
Hor Blank Time	= 5.587;	// (usec)	= 22 chars = 176 Pixels
Hor Sync Start	= 21.079;	// (usec)	= 83 chars = 664 Pixels
// H Right Border	= 0.254;	// (usec)	= 1 chars = 8 Pixels
// H Front Porch	= 0.508;	// (usec)	= 2 chars = 16 Pixels
Hor Sync Time	= 1.270;	// (usec)	= 5 chars = 40 Pixels
// H Back Porch	= 3.810;	// (usec)	= 15 chars = 120 Pixels
// H Left Border	= 0.254;	// (usec)	= 1 chars = 8 Pixels
Ver Total Time	= 13.735;	// (msec)	= 520 lines HT – (1.06xHA)
Ver Addr Time	= 12.678;	// (msec)	= 480 lines = 4.88
Ver Blank Start	= 12.889;	// (msec)	= 488 lines
Ver Blank Time	= 0.634;	// (msec)	= 24 lines
Ver Sync Start	= 12.916;	// (msec)	= 489 lines
// V Bottom Border	= 0.211;	// (msec)	= 8 lines
// V Front Porch	= 0.026;	// (msec)	= 1 lines
Ver Sync Time	= 0.079;	// (msec)	= 3 lines
// V Back Porch	= 0.528;	// (msec)	= 20 lines
// V Top Border	= 0.211;	// (msec)	= 8 lines

**Definition of Terms**



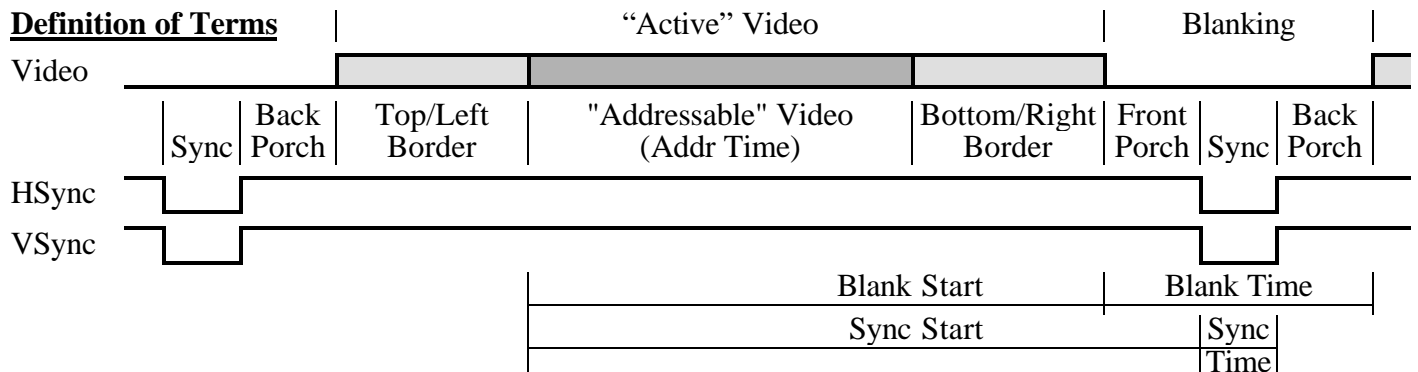
**VESA MONITOR TIMING STANDARD**

Adopted: 10/4/93  
 Resolution: 640 x 480 at 75 Hz (non-interlaced)  
 EDID ID: 031h, 04Fh  
 BIOS Modes: 11h, 12h, 101h, 110h, 111h, & 112h (1, 4, 8, 15, 16, & 24 bpp)

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	= <b>640 x 480 @ 75Hz;</b>		
Hor Pixels	= <b>640;</b>	// Pixels	
Ver Pixels	= <b>480;</b>	// Lines	
Hor Frequency	= 37.500;	// KHz	= 26.7 usec / line
Ver Frequency	= 75.000;	// Hz	= 13.3 msec / frame
Pixel Clock	= <b>31.500;</b>	// MHz	= 31.7 nsec ± 0.5%
Character Width	= <b>8;</b>	// Pixels	= 254.0 nsec
Scan Type	= <b>NONINTERLACED;</b>	// H Phase	= 6.2 %
Hor Sync Polarity	= <b>NEGATIVE;</b>	// HBlank	= 23.8% of HTotal
Ver Sync Polarity	= <b>NEGATIVE;</b>	// VBlank	= 4.0% of VTotal
Hor Total Time	= 26.667;	// (usec)	= 105 chars = 840 Pixels
Hor Addr Time	= 20.317;	// (usec)	= 80 chars = 640 Pixels
Hor Blank Start	= 20.317;	// (usec)	= 80 chars = 640 Pixels
Hor Blank Time	= 6.349;	// (usec)	= 25 chars = 200 Pixels
Hor Sync Start	= 20.825;	// (usec)	= 82 chars = 656 Pixels
// H Right Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	= 0.508;	// (usec)	= 2 chars = 16 Pixels
Hor Sync Time	= 2.032;	// (usec)	= 8 chars = 64 Pixels
// H Back Porch	= 3.810;	// (usec)	= 15 chars = 120 Pixels
// H Left Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	= 13.333;	// (msec)	= 500 lines HT – (1.06xHA)
Ver Addr Time	= 12.800;	// (msec)	= 480 lines = 5.13
Ver Blank Start	= 12.800;	// (msec)	= 480 lines
Ver Blank Time	= 0.533;	// (msec)	= 20 lines
Ver Sync Start	= 12.827;	// (msec)	= 481 lines
// V Bottom Border	= 0.000;	// (msec)	= 0 lines
// V Front Porch	= 0.027;	// (msec)	= 1 lines
Ver Sync Time	= 0.080;	// (msec)	= 3 lines
// V Back Porch	= 0.427;	// (msec)	= 16 lines
// V Top Border	= 0.000;	// (msec)	= 0 lines

**Definition of Terms**



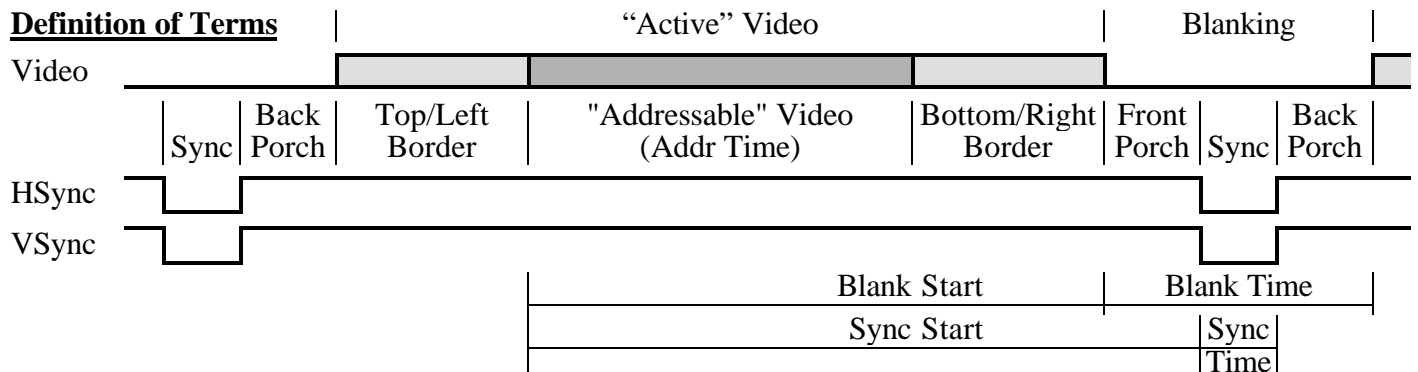
**VESA MONITOR TIMING STANDARD**

Proposed: 5/7/95  
 Adopted: 3/1/96  
 Resolution: 640 x 480 at 85 Hz (non-interlaced)  
 EDID ID: 031h, 059h

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>640 x 480 @ 85Hz;</b>		
Hor Pixels	=	<b>640;</b>	// Pixels	
Ver Pixels	=	<b>480;</b>	// Lines	
Hor Frequency	=	43.269;	// KHz	= 23.1 usec / line
Ver Frequency	=	85.008;	// Hz	= 11.8 msec / frame
Pixel Clock	=	<b>36.000;</b>	// MHz	= 27.8 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 222.2 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase =	1.4 %
Hor Sync Polarity	=	<b>NEGATIVE;</b>	// HBlank =	23.1% of HTotal
Ver Sync Polarity	=	<b>NEGATIVE;</b>	// VBlank =	5.7% of VTotal
Hor Total Time	=	23.111;	// (usec)	= 104 chars = 832 Pixels
Hor Addr Time	=	17.778;	// (usec)	= 80 chars = 640 Pixels
Hor Blank Start	=	17.778;	// (usec)	= 80 chars = 640 Pixels
Hor Blank Time	=	5.333;	// (usec)	= 24 chars = 192 Pixels
Hor Sync Start	=	19.333;	// (usec)	= 87 chars = 696 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	1.556;	// (usec)	= 7 chars = 56 Pixels
Hor Sync Time	=	1.556;	// (usec)	= 7 chars = 56 Pixels
// H Back Porch	=	2.222;	// (usec)	= 10 chars = 80 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	11.764;	// (msec)	= 509 lines HT – (1.06xHA)
Ver Addr Time	=	11.093;	// (msec)	= 480 lines = 4.27
Ver Blank Start	=	11.093;	// (msec)	= 480 lines
Ver Blank Time	=	0.670;	// (msec)	= 29 lines
Ver Sync Start	=	11.116;	// (msec)	= 481 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.023;	// (msec)	= 1 lines
Ver Sync Time	=	0.069;	// (msec)	= 3 lines
// V Back Porch	=	0.578;	// (msec)	= 25 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



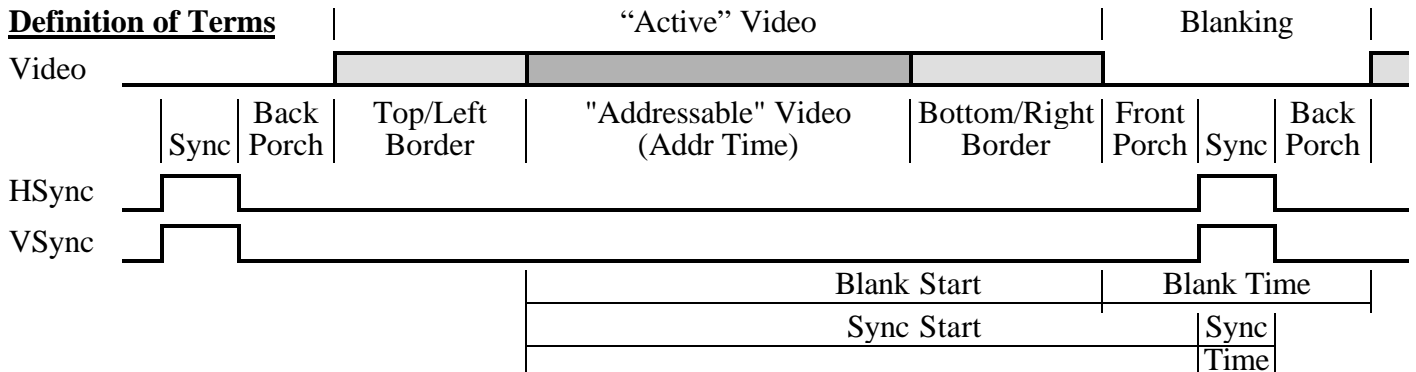
**VESA MONITOR TIMING STANDARD**

Adopted: 8/7/90 (VESA #900601)  
 Resolution: 800 x 600 at 56 Hz (non-interlaced)  
 EDID ID: n/a  
 BIOS Modes: 102h, 103h, 113h, 114h, & 115h (4, 8, 15, 16, & 24 bpp)

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>800 x 600 @ 56Hz;</b>		
Hor Pixels	=	<b>800;</b>	// Pixels	
Ver Pixels	=	<b>600;</b>	// Lines	
Hor Frequency	=	35.156;	// KHz	= 28.4 usec / line
Ver Frequency	=	56.250;	// Hz	= 17.8 msec / frame
Pixel Clock	=	<b>36.000;</b>	// MHz	= 27.8 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 222.2 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase =	5.1 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank =	21.9% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank =	4.0% of VTotal
Hor Total Time	=	28.444;	// (usec)	= 128 chars = 1024 Pixels
Hor Addr Time	=	22.222;	// (usec)	= 100 chars = 800 Pixels
Hor Blank Start	=	22.222;	// (usec)	= 100 chars = 800 Pixels
Hor Blank Time	=	6.222;	// (usec)	= 28 chars = 224 Pixels
Hor Sync Start	=	22.889;	// (usec)	= 103 chars = 824 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.667;	// (usec)	= 3 chars = 24 Pixels
Hor Sync Time	=	2.000;	// (usec)	= 9 chars = 72 Pixels
// H Back Porch	=	3.556;	// (usec)	= 16 chars = 128 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	17.778;	// (msec)	= 625 lines HT – (1.06xHA)
Ver Addr Time	=	17.067;	// (msec)	= 600 lines = 4.89
Ver Blank Start	=	17.067;	// (msec)	= 600 lines
Ver Blank Time	=	0.711;	// (msec)	= 25 lines
Ver Sync Start	=	17.095;	// (msec)	= 601 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.028;	// (msec)	= 1 lines
Ver Sync Time	=	0.057;	// (msec)	= 2 lines
// V Back Porch	=	0.626;	// (msec)	= 22 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



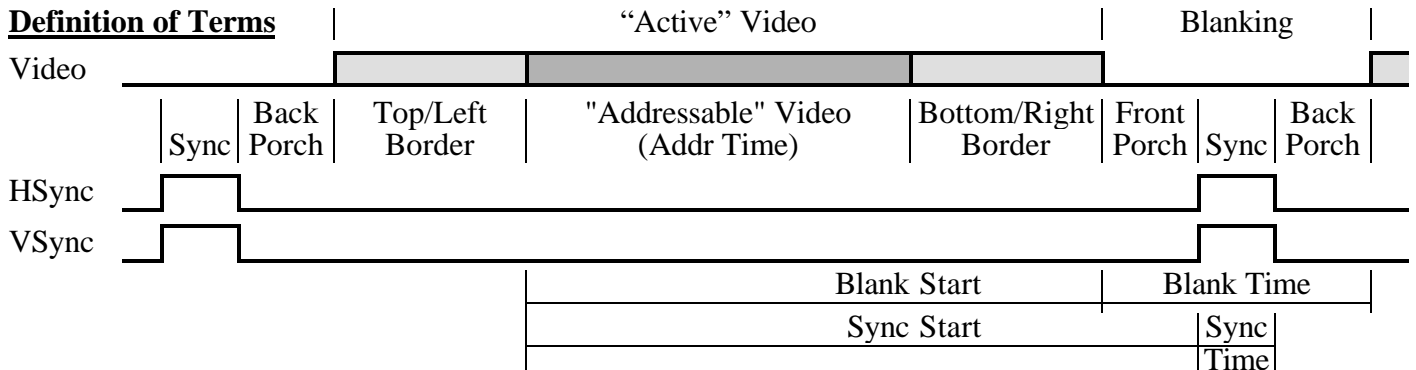
**VESA MONITOR TIMING STANDARD**

Adopted: 8/7/90 (VESA #900602)  
 Resolution: 800 x 600 at 60 Hz (non-interlaced)  
 EDID ID: 045h, 040h  
 BIOS Modes: 102h, 103h, 113h, 114h, & 115h (4, 8, 15, 16, & 24 bpp)

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>800 x 600 @ 60Hz;</b>		
Hor Pixels	=	<b>800;</b>	// Pixels	
Ver Pixels	=	<b>600;</b>	// Lines	
Hor Frequency	=	37.879;	// KHz	= 26.4 usec / line
Ver Frequency	=	60.317;	// Hz	= 16.6 msec / frame
Pixel Clock	=	<b>40.000;</b>	// MHz	= 25.0 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 200.0 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase =	2.3 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank =	24.2% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank =	4.5% of VTotal
Hor Total Time	=	26.400;	// (usec)	= 132 chars = 1056 Pixels
Hor Addr Time	=	20.000;	// (usec)	= 100 chars = 800 Pixels
Hor Blank Start	=	20.000;	// (usec)	= 100 chars = 800 Pixels
Hor Blank Time	=	6.400;	// (usec)	= 32 chars = 256 Pixels
Hor Sync Start	=	21.000;	// (usec)	= 105 chars = 840 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	1.000;	// (usec)	= 5 chars = 40 Pixels
Hor Sync Time	=	3.200;	// (usec)	= 16 chars = 128 Pixels
// H Back Porch	=	2.200;	// (usec)	= 11 chars = 88 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	16.579;	// (msec)	= 628 lines HT – (1.06xHA)
Ver Addr Time	=	15.840;	// (msec)	= 600 lines = 5.2
Ver Blank Start	=	15.840;	// (msec)	= 600 lines
Ver Blank Time	=	0.739;	// (msec)	= 28 lines
Ver Sync Start	=	15.866;	// (msec)	= 601 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.026;	// (msec)	= 1 lines
Ver Sync Time	=	0.106;	// (msec)	= 4 lines
// V Back Porch	=	0.607;	// (msec)	= 23 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**

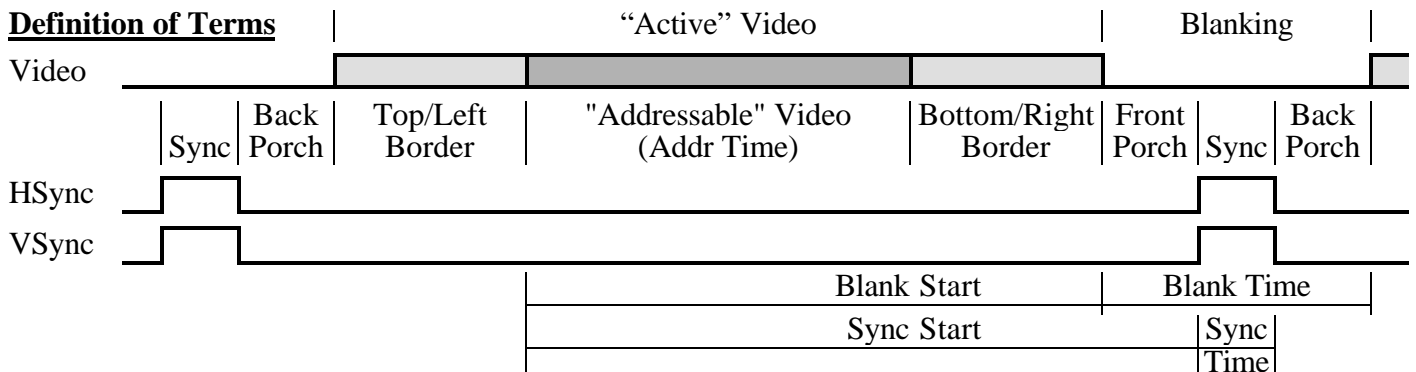


**VESA MONITOR TIMING STANDARD**

Adopted: 9/10/91 (VESA #900603A)  
 Resolution: 800 x 600 at 72 Hz (non-interlaced)  
 EDID ID: 045h, 04Ch  
 BIOS Modes: 102h, 103h, 113h, 114h, & 115h (4, 8, 15, 16, & 24 bpp)

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>800 x 600 @ 72Hz;</b>		
Hor Pixels	=	<b>800;</b>	// Pixels	
Ver Pixels	=	<b>600;</b>	// Lines	
Hor Frequency	=	48.077;	// KHz	= 20.8 usec / line
Ver Frequency	=	72.188;	// Hz	= 13.9 msec / frame
Pixel Clock	=	<b>50.000;</b>	// MHz	= 20.0 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 160.0 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase =	0.4 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank =	23.1% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank =	9.9% of VTotal
Hor Total Time	=	20.800;	// (usec)	= 130 chars = 1040 Pixels
Hor Addr Time	=	16.000;	// (usec)	= 100 chars = 800 Pixels
Hor Blank Start	=	16.000;	// (usec)	= 100 chars = 800 Pixels
Hor Blank Time	=	4.800;	// (usec)	= 30 chars = 240 Pixels
Hor Sync Start	=	17.120;	// (usec)	= 107 chars = 856 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	1.120;	// (usec)	= 7 chars = 56 Pixels
Hor Sync Time	=	2.400;	// (usec)	= 15 chars = 120 Pixels
// H Back Porch	=	1.280;	// (usec)	= 8 chars = 64 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	13.853;	// (msec)	= 666 lines HT – (1.06xHA)
Ver Addr Time	=	12.480;	// (msec)	= 600 lines = 3.84
Ver Blank Start	=	12.480;	// (msec)	= 600 lines
Ver Blank Time	=	1.373;	// (msec)	= 66 lines
Ver Sync Start	=	13.250;	// (msec)	= 637 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.770;	// (msec)	= 37 lines
Ver Sync Time	=	0.125;	// (msec)	= 6 lines
// V Back Porch	=	0.478;	// (msec)	= 23 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines



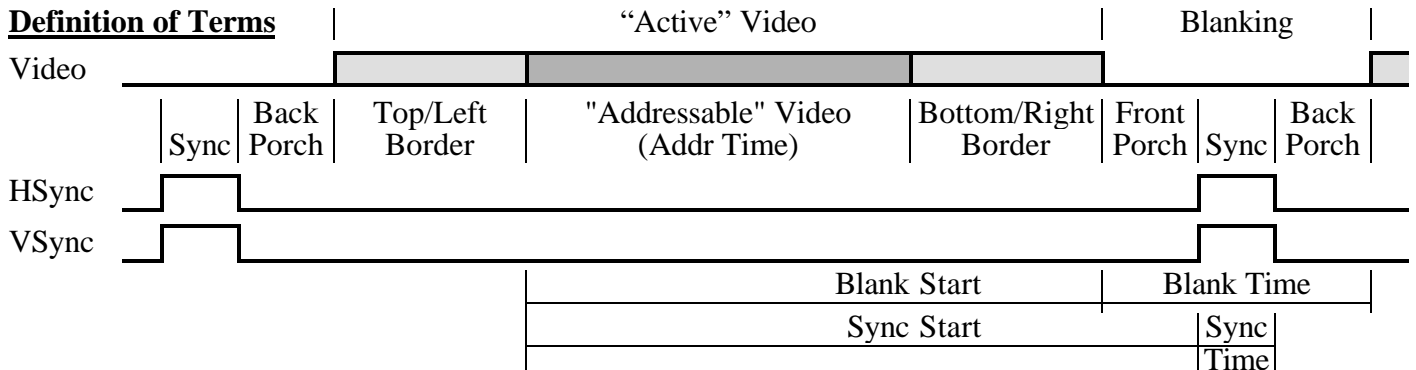
**VESA MONITOR TIMING STANDARD**

Adopted: 10/4/93  
 Resolution: 800 x 600 at 75 Hz (non-interlaced)  
 EDID ID: 045h, 04Fh  
 BIOS Modes: 102h, 103h, 113h, 114h, & 115h (4, 8, 15, 16, & 24 bpp)

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>800 x 600 @ 75Hz;</b>		
Hor Pixels	=	<b>800;</b>	// Pixels	
Ver Pixels	=	<b>600;</b>	// Lines	
Hor Frequency	=	46.875;	// KHz	= 21.3 usec / line
Ver Frequency	=	75.000;	// Hz	= 13.3 msec / frame
Pixel Clock	=	<b>49.500;</b>	// MHz	= 20.2 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 161.6 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase =	6.8 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank =	24.2% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank =	4.0% of VTotal
Hor Total Time	=	21.333;	// (usec)	= 132 chars = 1056 Pixels
Hor Addr Time	=	16.162;	// (usec)	= 100 chars = 800 Pixels
Hor Blank Start	=	16.162;	// (usec)	= 100 chars = 800 Pixels
Hor Blank Time	=	5.172;	// (usec)	= 32 chars = 256 Pixels
Hor Sync Start	=	16.485;	// (usec)	= 102 chars = 816 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.323;	// (usec)	= 2 chars = 16 Pixels
Hor Sync Time	=	1.616;	// (usec)	= 10 chars = 80 Pixels
// H Back Porch	=	3.232;	// (usec)	= 20 chars = 160 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	13.333;	// (msec)	= 625 lines HT – (1.06xHA)
Ver Addr Time	=	12.800;	// (msec)	= 600 lines = 4.2
Ver Blank Start	=	12.800;	// (msec)	= 600 lines
Ver Blank Time	=	0.533;	// (msec)	= 25 lines
Ver Sync Start	=	12.821;	// (msec)	= 601 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.021;	// (msec)	= 1 lines
Ver Sync Time	=	0.064;	// (msec)	= 3 lines
// V Back Porch	=	0.448;	// (msec)	= 21 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



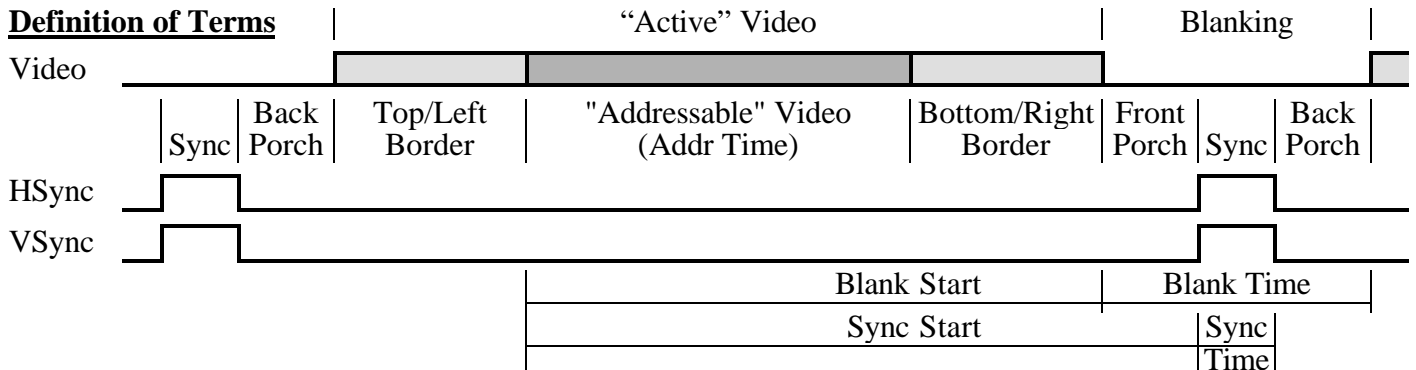
**VESA MONITOR TIMING STANDARD**

Proposed: 10/31/94  
 Adopted: 3/1/96  
 Resolution: 800 x 600 at 85 Hz (non-interlaced)  
 EDID ID: 045h, 059h

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>800 x 600 @ 85Hz;</b>		
Hor Pixels	=	<b>800;</b>	// Pixels	
Ver Pixels	=	<b>600;</b>	// Lines	
Hor Frequency	=	53.674;	// KHz	= 18.6 usec / line
Ver Frequency	=	85.061;	// Hz	= 11.8 msec / frame
Pixel Clock	=	<b>56.250;</b>	// MHz	= 17.8 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 142.2 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase =	5.7 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank =	23.7% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank =	4.9% of VTotal
Hor Total Time	=	18.631;	// (usec)	= 131 chars = 1048 Pixels
Hor Addr Time	=	14.222;	// (usec)	= 100 chars = 800 Pixels
Hor Blank Start	=	14.222;	// (usec)	= 100 chars = 800 Pixels
Hor Blank Time	=	4.409;	// (usec)	= 31 chars = 248 Pixels
Hor Sync Start	=	14.791;	// (usec)	= 104 chars = 832 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.569;	// (usec)	= 4 chars = 32 Pixels
Hor Sync Time	=	1.138;	// (usec)	= 8 chars = 64 Pixels
// H Back Porch	=	2.702;	// (usec)	= 19 chars = 152 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	11.756;	// (msec)	= 631 lines HT – (1.06xHA)
Ver Addr Time	=	11.179;	// (msec)	= 600 lines = 3.56
Ver Blank Start	=	11.179;	// (msec)	= 600 lines
Ver Blank Time	=	0.578;	// (msec)	= 31 lines
Ver Sync Start	=	11.197;	// (msec)	= 601 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.019;	// (msec)	= 1 lines
Ver Sync Time	=	0.056;	// (msec)	= 3 lines
// V Back Porch	=	0.503;	// (msec)	= 27 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



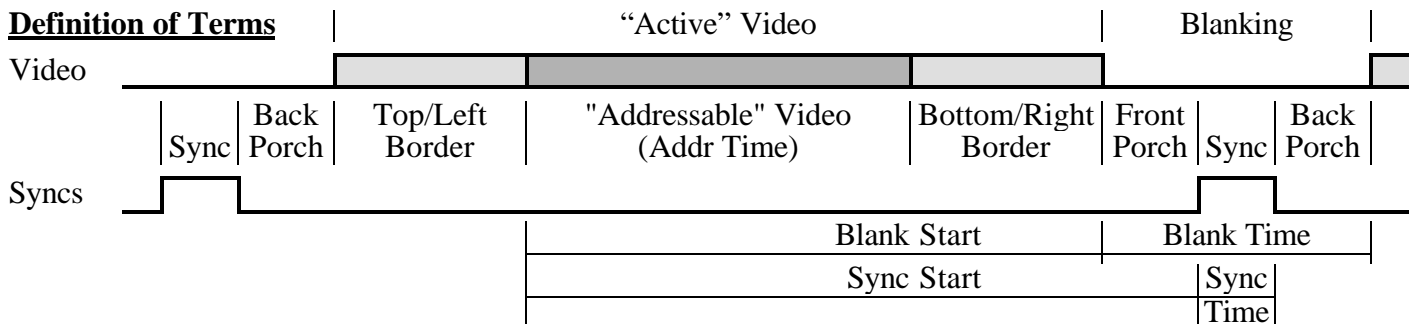
**VESA MONITOR TIMING STANDARD**

Adopted: n/a **\*\* For Reference Only - Not VESA Standard \*\***  
 Resolution: 1024 x 768 at 43 Hz (interlaced)  
 EDID ID: n/a  
 BIOS Modes: 104h, 105h, 116h, 117h, & 118h (4, 8, 15, 16, & 24 bpp)

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>"1024 x 768 @ 43Hz";</b>
Hor Pixels	=	<b>1024;</b> // Pixels
Ver Pixels	=	<b>768;</b> // Lines
Hor Frequency	=	35.522; // KHz = 28.2 usec / line
Ver Frequency	=	86.957; // Hz = 11.5 msec / <b>field</b>
Pixel Clock	=	<b>44.900;</b> // MHz = 22.3 nsec ± 0.5%
Character Width	=	<b>8;</b> // Pixels = 178.2 nsec
Scan Type	=	<b>INTERLACED;</b>
Hor Sync Polarity	=	<b>POSITIVE;</b> // HBlank = 19.0% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b> // VBlank = 5.9% of VTotal
Hor Total Time	=	28.151; // (usec) = 158 chars = 1264 Pixels
Hor Addr Time	=	22.806; // (usec) = 128 chars = 1024 Pixels
Hor Blank Start	=	22.806; // (usec) = 128 chars = 1024 Pixels
Hor Blank Time	=	5.345; // (usec) = 30 chars = 240 Pixels
Hor Sync Start	=	22.984; // (usec) = 129 chars = 1032 Pixels
// H Right Border	=	0.000; // (usec) = 0 chars = 0 Pixels
// H Front Porch	=	0.178; // (usec) = 1 chars = 8 Pixels
Hor Sync Time	=	3.920; // (usec) = 22 chars = 176 Pixels
// H Back Porch	=	1.247; // (usec) = 7 chars = 56 Pixels
// H Left Border	=	0.000; // (usec) = 0 chars = 0 Pixels
Ver Total Time	=	23.000; // (msec) = 817 lines (Per Frame)
Ver Addr Time	=	21.620; // (msec) = 768 lines (Per Frame)
Ver Blank Start	=	21.620; // (msec) = 768 lines (Per Frame)
Ver Blank Time	=	0.676; // (msec) = 24 lines ( <b>Per Field</b> )
Ver Sync Start	=	21.620; // (msec) = 768 lines (Per Frame)
// V Bottom Border	=	0.000; // (msec) = 0 lines (Odd Field)
// V Front Porch	=	0.000; // (msec) = 0 lines (Odd Field)
Ver Sync Time	=	0.113; // (msec) = 4 lines (Both Fields)
// V Back Porch	=	0.563; // (msec) = 20 lines (Odd Field)
// V Top Border	=	0.000; // (msec) = 0 lines (Odd Field)

The vertical refresh rate is defined as the 'Frame' rate where a frame is made up of two fields (odd and even). The blank timing above is defined for the 'odd' field (even field blanking has one additional line). Therefore: Vertical Total = Ver Addr Time + (2 \* Ver Blank Time) + 1



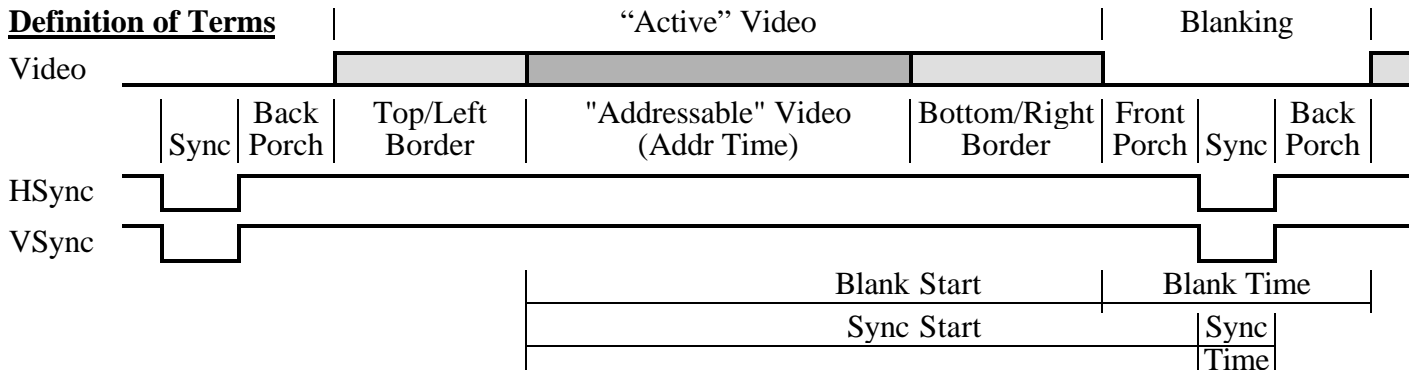
**VESA MONITOR TIMING STANDARD**

Adopted: 9/10/91 (VESA #901101A)  
 Resolution: 1024 x 768 at 60 Hz (non-interlaced)  
 EDID ID: 061h, 040h  
 BIOS Modes: 104h, 105h, 116h, 117h, & 118h (4, 8, 15, 16, & 24 bpp)

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	= <b>1024 x 768 @ 60Hz;</b>		
Hor Pixels	= <b>1024;</b>	// Pixels	
Ver Pixels	= <b>768;</b>	// Lines	
Hor Frequency	= 48.363;	// KHz	= 20.7 usec / line
Ver Frequency	= 60.004;	// Hz	= 16.7 msec / frame
Pixel Clock	= <b>65.000;</b>	// MHz	= 15.4 nsec ± 0.5%
Character Width	= <b>8;</b>	// Pixels	= 123.1 nsec
Scan Type	= <b>NONINTERLACED;</b>	// H Phase	= 5.1 %
Hor Sync Polarity	= <b>NEGATIVE;</b>	// HBlank	= 23.8% of HTotal
Ver Sync Polarity	= <b>NEGATIVE;</b>	// VBlank	= 4.7% of VTotal
Hor Total Time	= 20.677;	// (usec)	= 168 chars = 1344 Pixels
Hor Addr Time	= 15.754;	// (usec)	= 128 chars = 1024 Pixels
Hor Blank Start	= 15.754;	// (usec)	= 128 chars = 1024 Pixels
Hor Blank Time	= 4.923;	// (usec)	= 40 chars = 320 Pixels
Hor Sync Start	= 16.123;	// (usec)	= 131 chars = 1048 Pixels
// H Right Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	= 0.369;	// (usec)	= 3 chars = 24 Pixels
Hor Sync Time	= 2.092;	// (usec)	= 17 chars = 136 Pixels
// H Back Porch	= 2.462;	// (usec)	= 20 chars = 160 Pixels
// H Left Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	= 16.666;	// (msec)	= 806 lines HT – (1.06xHA)
Ver Addr Time	= 15.880;	// (msec)	= 768 lines = 3.98
Ver Blank Start	= 15.880;	// (msec)	= 768 lines
Ver Blank Time	= 0.786;	// (msec)	= 38 lines
Ver Sync Start	= 15.942;	// (msec)	= 771 lines
// V Bottom Border	= 0.000;	// (msec)	= 0 lines
// V Front Porch	= 0.062;	// (msec)	= 3 lines
Ver Sync Time	= 0.124;	// (msec)	= 6 lines
// V Back Porch	= 0.600;	// (msec)	= 29 lines
// V Top Border	= 0.000;	// (msec)	= 0 lines

**Definition of Terms**



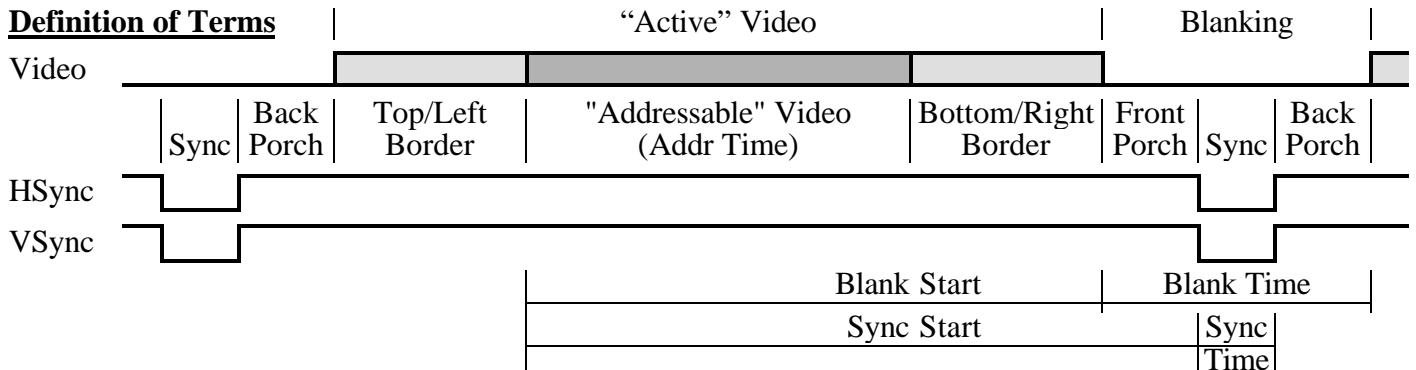
**VESA MONITOR TIMING STANDARD**

Adopted: 8/9/91 (VESA #910801-2)  
 Resolution: 1024 x 768 at 70 Hz (non-interlaced)  
 EDID ID: 061h, 04Ah  
 BIOS Modes: 104h, 105h, 116h, 117h, & 118h (4, 8, 15, 16, & 24 bpp)

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	= <b>1024 x 768 @ 70Hz;</b>		
Hor Pixels	= <b>1024;</b>	// Pixels	
Ver Pixels	= <b>768;</b>	// Lines	
Hor Frequency	= 56.476;	// KHz	= 17.7 usec / line
Ver Frequency	= 70.069;	// Hz	= 14.3 msec / frame
Pixel Clock	= <b>75.000;</b>	// MHz	= 13.3 nsec ± 0.5%
Character Width	= <b>8;</b>	// Pixels	= 106.7 nsec
Scan Type	= <b>NONINTERLACED;</b> // H Phase = 4.5 %		
Hor Sync Polarity	= <b>NEGATIVE;</b>	// HBlank	= 22.9% of HTotal
Ver Sync Polarity	= <b>NEGATIVE;</b>	// VBlank	= 4.7% of VTotal
Hor Total Time	= 17.707;	// (usec)	= 166 chars = 1328 Pixels
Hor Addr Time	= 13.653;	// (usec)	= 128 chars = 1024 Pixels
Hor Blank Start	= 13.653;	// (usec)	= 128 chars = 1024 Pixels
Hor Blank Time	= 4.053;	// (usec)	= 38 chars = 304 Pixels
Hor Sync Start	= 13.973;	// (usec)	= 131 chars = 1048 Pixels
// H Right Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	= 0.320;	// (usec)	= 3 chars = 24 Pixels
Hor Sync Time	= 1.813;	// (usec)	= 17 chars = 136 Pixels
// H Back Porch	= 1.920;	// (usec)	= 18 chars = 144 Pixels
// H Left Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	= 14.272;	// (msec)	= 806 lines HT – (1.06xHA)
Ver Addr Time	= 13.599;	// (msec)	= 768 lines = 3.23
Ver Blank Start	= 13.599;	// (msec)	= 768 lines
Ver Blank Time	= 0.673;	// (msec)	= 38 lines
Ver Sync Start	= 13.652;	// (msec)	= 771 lines
// V Bottom Border	= 0.000;	// (msec)	= 0 lines
// V Front Porch	= 0.053;	// (msec)	= 3 lines
Ver Sync Time	= 0.106;	// (msec)	= 6 lines
// V Back Porch	= 0.513;	// (msec)	= 29 lines
// V Top Border	= 0.000;	// (msec)	= 0 lines

**Definition of Terms**



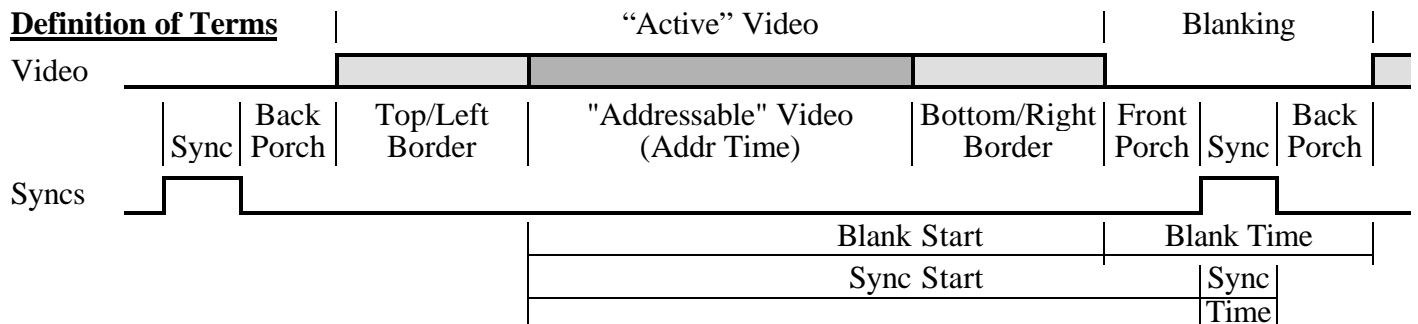
**VESA MONITOR TIMING STANDARD**

Adopted: 10/4/93  
 Resolution: 1024 x 768 at 75 Hz (non-interlaced)  
 EDID ID: 061h, 04Fh  
 BIOS Modes: 104h, 105h, 116h, 117h, & 118h (4, 8, 15, 16, & 24 bpp)

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>1024 x 768 @ 75Hz;</b>		
Hor Pixels	=	<b>1024;</b>	// Pixels	
Ver Pixels	=	<b>768;</b>	// Lines	
Hor Frequency	=	60.023;	// KHz	= 16.7 usec / line
Ver Frequency	=	75.029;	// Hz	= 13.3 msec / frame
Pixel Clock	=	<b>78.750;</b>	// MHz	= 12.7 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 101.6 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase	= 6.1 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank	= 22.0% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank	= 4.0% of VTotal
Hor Total Time	=	16.660;	// (usec)	= 164 chars = 1312 Pixels
Hor Addr Time	=	13.003;	// (usec)	= 128 chars = 1024 Pixels
Hor Blank Start	=	13.003;	// (usec)	= 128 chars = 1024 Pixels
Hor Blank Time	=	3.657;	// (usec)	= 36 chars = 288 Pixels
Hor Sync Start	=	13.206;	// (usec)	= 130 chars = 1040 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.203;	// (usec)	= 2 chars = 16 Pixels
Hor Sync Time	=	1.219;	// (usec)	= 12 chars = 96 Pixels
// H Back Porch	=	2.235;	// (usec)	= 22 chars = 176 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	13.328;	// (msec)	= 800 lines HT - (1.06xHA)
Ver Addr Time	=	12.795;	// (msec)	= 768 lines = 2.88
Ver Blank Start	=	12.795;	// (msec)	= 768 lines
Ver Blank Time	=	0.533;	// (msec)	= 32 lines
Ver Sync Start	=	12.812;	// (msec)	= 769 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.017;	// (msec)	= 1 lines
Ver Sync Time	=	0.050;	// (msec)	= 3 lines
// V Back Porch	=	0.466;	// (msec)	= 28 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

The above 1024x768 timing is intended to come as close as possible to 75.000 Hz refresh within the constraints of an integer pixel clock and 8-pixel characters. This timing is already very close to the ideal rate with the integer clock; achieving exactly 75.000 Hz with the same parameters requires a 78.720 MHz pixel clock.



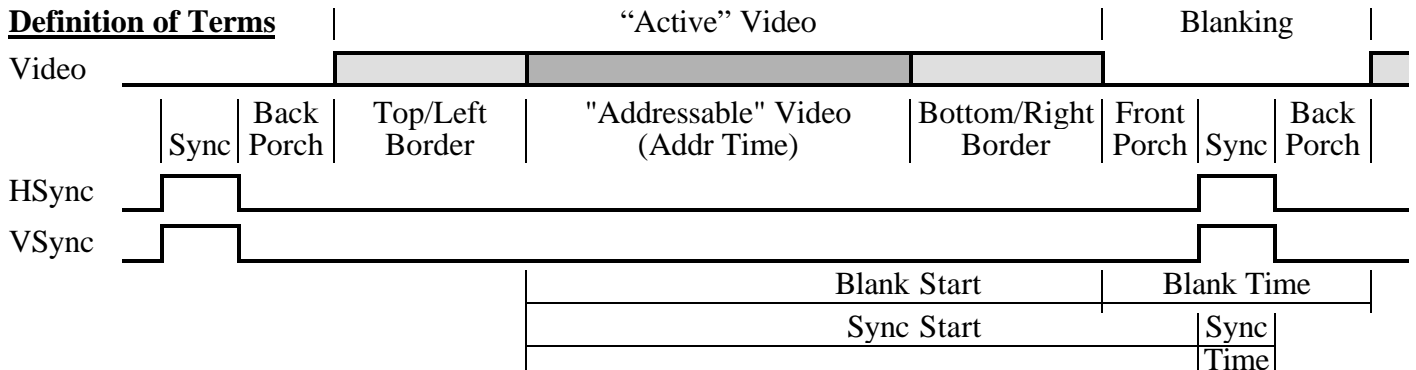
**VESA MONITOR TIMING STANDARD**

Proposed: 10/31/94  
 Adopted: 3/1/96  
 Resolution: 1024 x 768 at 85 Hz (non-interlaced)  
 EDID ID: 061h, 059h

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>1024 x 768 @ 85Hz;</b>		
Hor Pixels	=	<b>1024;</b>	// Pixels	
Ver Pixels	=	<b>768;</b>	// Lines	
Hor Frequency	=	68.677;	// KHz	= 14.6 usec / line
Ver Frequency	=	84.997;	// Hz	= 11.8 msec / frame
Pixel Clock	=	<b>94.500;</b>	// MHz	= 10.6 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 84.7 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase	= 5.8 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank	= 25.6% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank	= 5.0% of VTotal
Hor Total Time	=	14.561;	// (usec)	= 172 chars = 1376 Pixels
Hor Addr Time	=	10.836;	// (usec)	= 128 chars = 1024 Pixels
Hor Blank Start	=	10.836;	// (usec)	= 128 chars = 1024 Pixels
Hor Blank Time	=	3.725;	// (usec)	= 44 chars = 352 Pixels
Hor Sync Start	=	11.344;	// (usec)	= 134 chars = 1072 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.508;	// (usec)	= 6 chars = 48 Pixels
Hor Sync Time	=	1.016;	// (usec)	= 12 chars = 96 Pixels
// H Back Porch	=	2.201;	// (usec)	= 26 chars = 208 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	11.765;	// (msec)	= 808 lines HT - (1.06xHA)
Ver Addr Time	=	11.183;	// (msec)	= 768 lines = 3.07
Ver Blank Start	=	11.183;	// (msec)	= 768 lines
Ver Blank Time	=	0.582;	// (msec)	= 40 lines
Ver Sync Start	=	11.197;	// (msec)	= 769 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.015;	// (msec)	= 1 lines
Ver Sync Time	=	0.044;	// (msec)	= 3 lines
// V Back Porch	=	0.524;	// (msec)	= 36 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



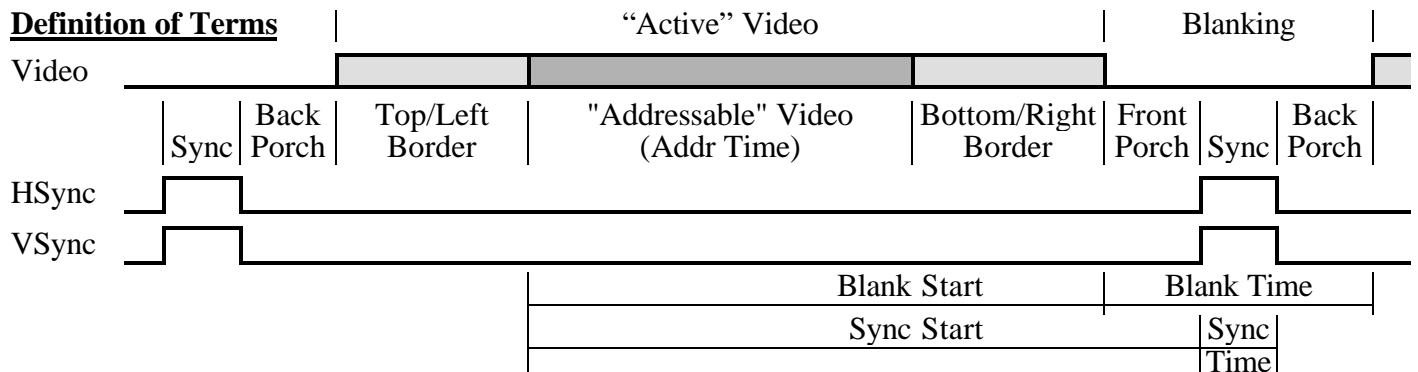
**VESA MONITOR TIMING STANDARD**

Proposed: 10/31/94  
 Adopted: 3/1/96  
 Resolution: 1152 x 864 at 75 Hz (non-interlaced)  
 EDID ID: 071h, 04Fh

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>1152 x 864 @ 75Hz;</b>		
Hor Pixels	=	<b>1152;</b>	// Pixels	
Ver Pixels	=	<b>864;</b>	// Lines	
Hor Frequency	=	67.500;	// KHz	= 14.8 usec / line
Ver Frequency	=	75.000;	// Hz	= 13.3 msec / frame
Pixel Clock	=	<b>108.000;</b>	// MHz	= 9.3 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 74.1 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase =	6.0 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank =	28.0% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank =	4.0% of VTotal
Hor Total Time	=	14.815;	// (usec)	= 200 chars = 1600 Pixels
Hor Addr Time	=	10.667;	// (usec)	= 144 chars = 1152 Pixels
Hor Blank Start	=	10.667;	// (usec)	= 144 chars = 1152 Pixels
Hor Blank Time	=	4.148;	// (usec)	= 56 chars = 448 Pixels
Hor Sync Start	=	11.259;	// (usec)	= 152 chars = 1216 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.593;	// (usec)	= 8 chars = 64 Pixels
Hor Sync Time	=	1.185;	// (usec)	= 16 chars = 128 Pixels
// H Back Porch	=	2.370;	// (usec)	= 32 chars = 256 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	13.333;	// (msec)	= 900 lines HT – (1.06xHA)
Ver Addr Time	=	12.800;	// (msec)	= 864 lines = 3.51
Ver Blank Start	=	12.800;	// (msec)	= 864 lines
Ver Blank Time	=	0.533;	// (msec)	= 36 lines
Ver Sync Start	=	12.815;	// (msec)	= 865 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.015;	// (msec)	= 1 lines
Ver Sync Time	=	0.044;	// (msec)	= 3 lines
// V Back Porch	=	0.474;	// (msec)	= 32 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



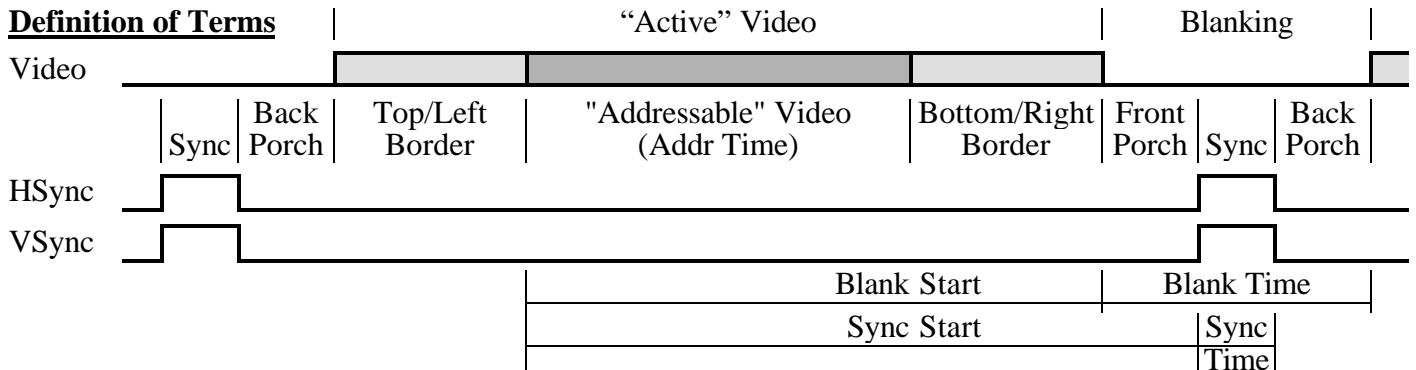
**VESA MONITOR TIMING STANDARD**

Proposed: 10/31/94  
 Adopted: 3/1/96  
 Resolution: 1280 x 960 at 60 Hz (non-interlaced)  
 EDID ID: 081h, 040h

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	= <b>1280 x 960 @ 60Hz;</b>		
Hor Pixels	= <b>1280;</b>	// Pixels	
Ver Pixels	= <b>960;</b>	// Lines	
Hor Frequency	= 60.000;	// KHz	= 16.7 usec / line
Ver Frequency	= 60.000;	// Hz	= 16.7 msec / frame
Pixel Clock	= <b>108.000;</b>	// MHz	= 9.3 nsec ± 0.5%
Character Width	= <b>8;</b>	// Pixels	= 74.1 nsec
Scan Type	= <b>NONINTERLACED;</b> // H Phase = 6.0 %		
Hor Sync Polarity	= <b>POSITIVE;</b>	// HBlank	= 28.9% of HTotal
Ver Sync Polarity	= <b>POSITIVE;</b>	// VBlank	= 4.0% of VTotal
Hor Total Time	= 16.667;	// (usec)	= 225 chars = 1800 Pixels
Hor Addr Time	= 11.852;	// (usec)	= 160 chars = 1280 Pixels
Hor Blank Start	= 11.852;	// (usec)	= 160 chars = 1280 Pixels
Hor Blank Time	= 4.815;	// (usec)	= 65 chars = 520 Pixels
Hor Sync Start	= 12.741;	// (usec)	= 172 chars = 1376 Pixels
// H Right Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	= 0.889;	// (usec)	= 12 chars = 96 Pixels
Hor Sync Time	= 1.037;	// (usec)	= 14 chars = 112 Pixels
// H Back Porch	= 2.889;	// (usec)	= 39 chars = 312 Pixels
// H Left Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	= 16.667;	// (msec)	= 1000 lines HT – (1.06xHA)
Ver Addr Time	= 16.000;	// (msec)	= 960 lines = 4.1
Ver Blank Start	= 16.000;	// (msec)	= 960 lines
Ver Blank Time	= 0.667;	// (msec)	= 40 lines
Ver Sync Start	= 16.017;	// (msec)	= 961 lines
// V Bottom Border	= 0.000;	// (msec)	= 0 lines
// V Front Porch	= 0.017;	// (msec)	= 1 lines
Ver Sync Time	= 0.050;	// (msec)	= 3 lines
// V Back Porch	= 0.600;	// (msec)	= 36 lines
// V Top Border	= 0.000;	// (msec)	= 0 lines

**Definition of Terms**



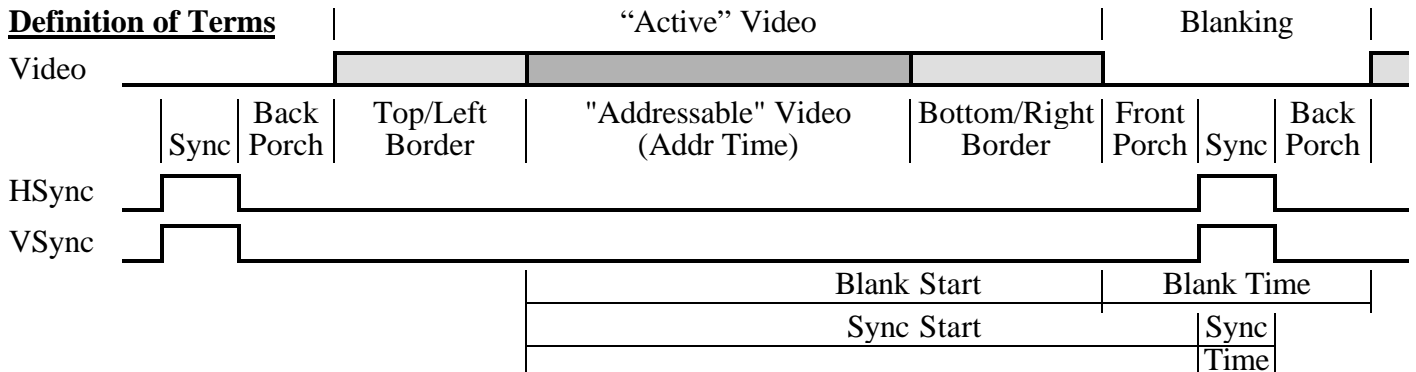
**VESA MONITOR TIMING STANDARD**

Proposed: 10/10/95  
 Adopted: 3/1/96  
 Resolution: 1280 x 960 at 85 Hz (non-interlaced)  
 EDID ID: 081h, 059h

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	= <b>1280 x 960 @ 85Hz;</b>		
Hor Pixels	= <b>1280;</b>	// Pixels	
Ver Pixels	= <b>960;</b>	// Lines	
Hor Frequency	= 85.938;	// KHz	= 11.6 usec / line
Ver Frequency	= 85.002;	// Hz	= 11.8 msec / frame
Pixel Clock	= <b>148.500;</b>	// MHz	= 6.7 nsec ± 0.5%
Character Width	= <b>8;</b>	// Pixels	= 53.9 nsec
Scan Type	= <b>NONINTERLACED;</b>	// H Phase	= 4.6 %
Hor Sync Polarity	= <b>POSITIVE;</b>	// HBlank	= 25.9% of HTotal
Ver Sync Polarity	= <b>POSITIVE;</b>	// VBlank	= 5.0% of VTotal
Hor Total Time	= 11.636;	// (usec)	= 216 chars = 1728 Pixels
Hor Addr Time	= 8.620;	// (usec)	= 160 chars = 1280 Pixels
Hor Blank Start	= 8.620;	// (usec)	= 160 chars = 1280 Pixels
Hor Blank Time	= 3.017;	// (usec)	= 56 chars = 448 Pixels
Hor Sync Start	= 9.051;	// (usec)	= 168 chars = 1344 Pixels
// H Right Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	= 0.431;	// (usec)	= 8 chars = 64 Pixels
Hor Sync Time	= 1.077;	// (usec)	= 20 chars = 160 Pixels
// H Back Porch	= 1.508;	// (usec)	= 28 chars = 224 Pixels
// H Left Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	= 11.764;	// (msec)	= 1011 lines HT – (1.06xHA)
Ver Addr Time	= 11.171;	// (msec)	= 960 lines = 2.5
Ver Blank Start	= 11.171;	// (msec)	= 960 lines
Ver Blank Time	= 0.593;	// (msec)	= 51 lines
Ver Sync Start	= 11.183;	// (msec)	= 961 lines
// V Bottom Border	= 0.000;	// (msec)	= 0 lines
// V Front Porch	= 0.012;	// (msec)	= 1 lines
Ver Sync Time	= 0.035;	// (msec)	= 3 lines
// V Back Porch	= 0.547;	// (msec)	= 47 lines
// V Top Border	= 0.000;	// (msec)	= 0 lines

**Definition of Terms**



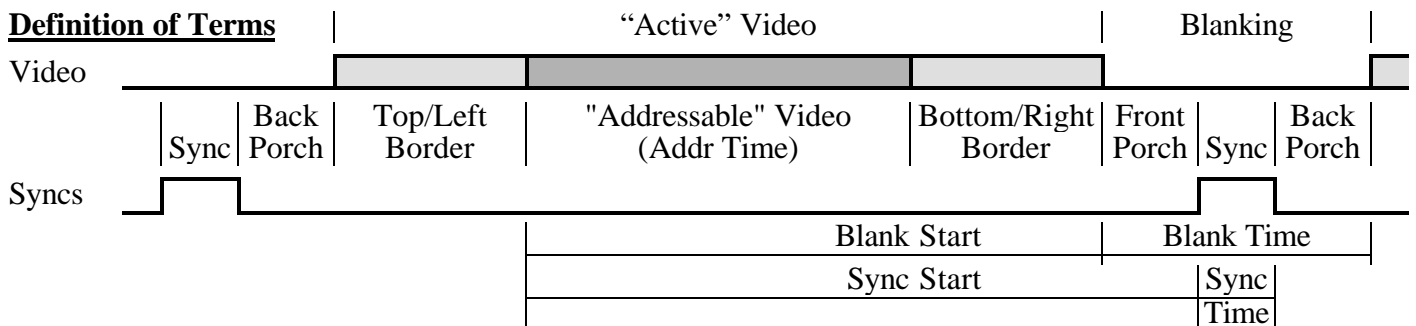
**VESA MONITOR TIMING STANDARD**

Adopted: 12/18/96  
 Resolution: 1280 x 1024 at 60 Hz (non-interlaced)  
 EDID ID: 081h, 080h  
 BIOS Modes: 106h, 107h, 119h, 11Ah, & 11Bh (4, 8, 15, 16, & 24 bpp)

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	= <b>1280 x 1024 @ 60Hz;</b>		
Hor Pixels	= <b>1280;</b>	// Pixels	
Ver Pixels	= <b>1024;</b>	// Lines	
Hor Frequency	= 63.981;	// KHz	= 15.6 usec / line
Ver Frequency	= 60.020;	// Hz	= 16.7 msec / frame
Pixel Clock	= <b>108.000;</b>	// MHz	= 9.3 nsec ± 0.5%
Character Width	= <b>8;</b>	// Pixels	= 74.1 nsec
Scan Type	= <b>NONINTERLACED;</b>		// H Phase = 5.9 %
Hor Sync Polarity	= <b>POSITIVE;</b>	// HBlank	= 24.2% of HTotal
Ver Sync Polarity	= <b>POSITIVE;</b>	// VBlank	= 3.9% of VTotal
Hor Total Time	= 15.630;	// (usec)	= 211 chars = 1688 Pixels
Hor Addr Time	= 11.852;	// (usec)	= 160 chars = 1280 Pixels
Hor Blank Start	= 11.852;	// (usec)	= 160 chars = 1280 Pixels
Hor Blank Time	= 3.778;	// (usec)	= 51 chars = 408 Pixels
Hor Sync Start	= 12.296;	// (usec)	= 166 chars = 1328 Pixels
// H Right Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	= 0.444;	// (usec)	= 6 chars = 48 Pixels
Hor Sync Time	= 1.037;	// (usec)	= 14 chars = 112 Pixels
// H Back Porch	= 2.296;	// (usec)	= 31 chars = 248 Pixels
// H Left Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	= 16.661;	// (msec)	= 1066 lines HT – (1.06xHA)
Ver Addr Time	= 16.005;	// (msec)	= 1024 lines = 3.07
Ver Blank Start	= 16.005;	// (msec)	= 1024 lines
Ver Blank Time	= 0.656;	// (msec)	= 42 lines
Ver Sync Start	= 16.020;	// (msec)	= 1025 lines
// V Bottom Border	= 0.000;	// (msec)	= 0 lines
// V Front Porch	= 0.016;	// (msec)	= 1 lines
Ver Sync Time	= 0.047;	// (msec)	= 3 lines
// V Back Porch	= 0.594;	// (msec)	= 38 lines
// V Top Border	= 0.000;	// (msec)	= 0 lines

**Definition of Terms**



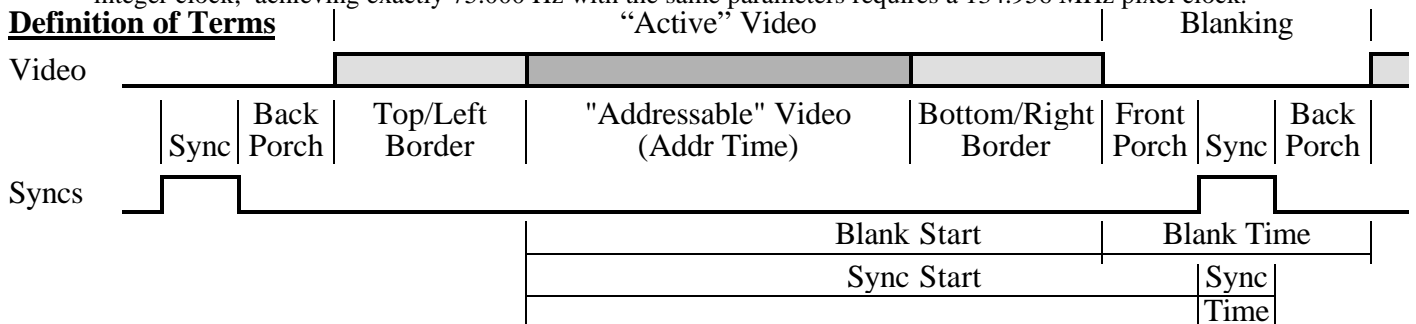
**VESA MONITOR TIMING STANDARD**

Adopted: 10/4/93  
 Resolution: 1280 x 1024 at 75 Hz (non-interlaced)  
 EDID ID: 081h, 08Fh  
 BIOS Modes: 106h, 107h, 119h, 11Ah, & 11Bh (4, 8, 15, 16, & 24 bpp)

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>1280 x 1024 @ 75Hz;</b>		
Hor Pixels	=	<b>1280;</b>	// Pixels	
Ver Pixels	=	<b>1024;</b>	// Lines	
Hor Frequency	=	79.976;	// KHz	= 12.5 usec / line
Ver Frequency	=	75.025;	// Hz	= 13.3 msec / frame
Pixel Clock	=	<b>135.000;</b>	// MHz	= 7.4 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 59.3 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase	= 6.9 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank	= 24.2% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank	= 3.9% of VTotal
Hor Total Time	=	12.504;	// (usec)	= 211 chars = 1688 Pixels
Hor Addr Time	=	9.481;	// (usec)	= 160 chars = 1280 Pixels
Hor Blank Start	=	9.481;	// (usec)	= 160 chars = 1280 Pixels
Hor Blank Time	=	3.022;	// (usec)	= 51 chars = 408 Pixels
Hor Sync Start	=	9.600;	// (usec)	= 162 chars = 1296 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.119;	// (usec)	= 2 chars = 16 Pixels
Hor Sync Time	=	1.067;	// (usec)	= 18 chars = 144 Pixels
// H Back Porch	=	1.837;	// (usec)	= 31 chars = 248 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	13.329;	// (msec)	= 1066 lines HT – (1.06xHA)
Ver Addr Time	=	12.804;	// (msec)	= 1024 lines = 2.45
Ver Blank Start	=	12.804;	// (msec)	= 1024 lines
Ver Blank Time	=	0.525;	// (msec)	= 42 lines
Ver Sync Start	=	12.816;	// (msec)	= 1025 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.013;	// (msec)	= 1 lines
Ver Sync Time	=	0.038;	// (msec)	= 3 lines
// V Back Porch	=	0.475;	// (msec)	= 38 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

The above 1280x1024 timing is intended to come as close as possible to 75.000 Hz refresh within the constraints of an integer pixel clock and 8-pixel characters. This timing is already very close to the ideal rate with the integer clock; achieving exactly 75.000 Hz with the same parameters requires a 134.956 MHz pixel clock.



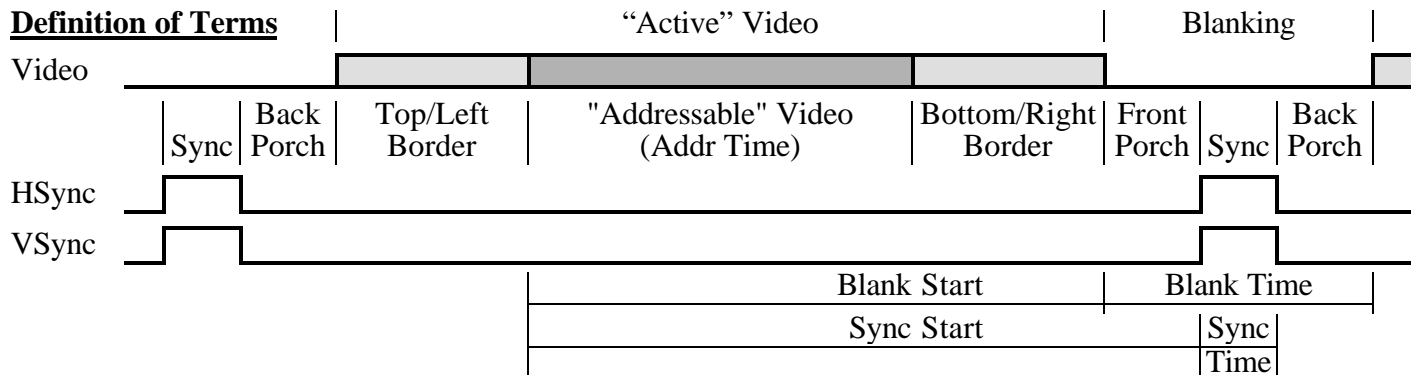
**VESA MONITOR TIMING STANDARD**

Proposed: 10/10/95  
 Adopted: 3/1/96  
 Resolution: 1280 x 1024 at 85 Hz (non-interlaced)  
 EDID ID: 081h, 099h

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>1280 x 1024 @ 85Hz;</b>	
Hor Pixels	=	<b>1280;</b>	// Pixels
Ver Pixels	=	<b>1024;</b>	// Lines
Hor Frequency	=	91.146;	// KHz = 11.0 usec / line
Ver Frequency	=	85.024;	// Hz = 11.8 msec / frame
Pixel Clock	=	<b>157.500;</b>	// MHz = 6.3 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels = 50.8 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase = 4.6 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank = 25.9% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank = 4.5% of VTotal
Hor Total Time	=	10.971;	// (usec) = 216 chars = 1728 Pixels
Hor Addr Time	=	8.127;	// (usec) = 160 chars = 1280 Pixels
Hor Blank Start	=	8.127;	// (usec) = 160 chars = 1280 Pixels
Hor Blank Time	=	2.844;	// (usec) = 56 chars = 448 Pixels
Hor Sync Start	=	8.533;	// (usec) = 168 chars = 1344 Pixels
// H Right Border	=	0.000;	// (usec) = 0 chars = 0 Pixels
// H Front Porch	=	0.406;	// (usec) = 8 chars = 64 Pixels
Hor Sync Time	=	1.016;	// (usec) = 20 chars = 160 Pixels
// H Back Porch	=	1.422;	// (usec) = 28 chars = 224 Pixels
// H Left Border	=	0.000;	// (usec) = 0 chars = 0 Pixels
Ver Total Time	=	11.761;	// (msec) = 1072 lines HT – (1.06xHA)
Ver Addr Time	=	11.235;	// (msec) = 1024 lines = 2.36
Ver Blank Start	=	11.235;	// (msec) = 1024 lines
Ver Blank Time	=	0.527;	// (msec) = 48 lines
Ver Sync Start	=	11.246;	// (msec) = 1025 lines
// V Bottom Border	=	0.000;	// (msec) = 0 lines
// V Front Porch	=	0.011;	// (msec) = 1 lines
Ver Sync Time	=	0.033;	// (msec) = 3 lines
// V Back Porch	=	0.483;	// (msec) = 44 lines
// V Top Border	=	0.000;	// (msec) = 0 lines

**Definition of Terms**



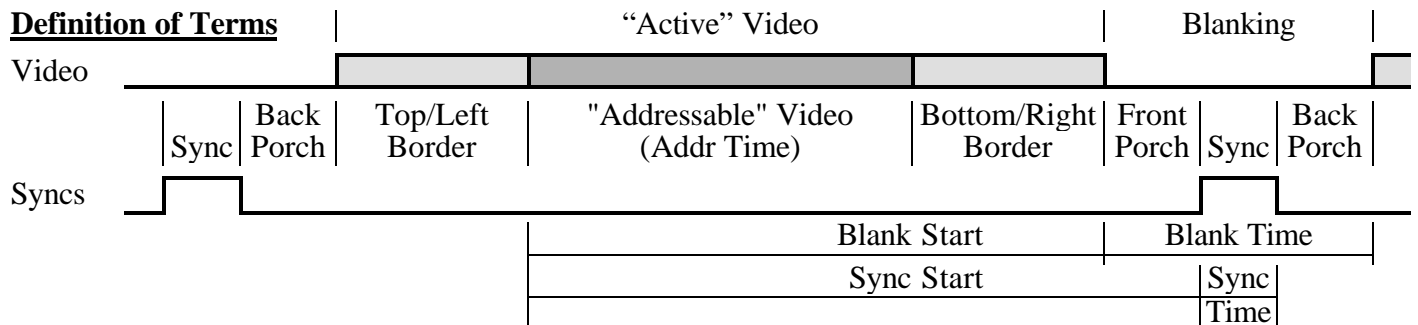
**VESA MONITOR TIMING STANDARD**

Adopted: 12/18/96  
 Resolution: 1600 x 1200 at 60 Hz (non-interlaced)  
 EDID ID: 0A9h, 040h

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>1600 x 1200 @ 60Hz;</b>		
Hor Pixels	=	<b>1600;</b>	// Pixels	
Ver Pixels	=	<b>1200;</b>	// Lines	
Hor Frequency	=	75.000;	// KHz	= 13.3 usec / line
Ver Frequency	=	60.000;	// Hz	= 16.7 msec / frame
Pixel Clock	=	<b>162.000;</b>	// MHz	= 6.2 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 49.4 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase	= 5.6 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank	= 25.9% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank	= 4.0% of VTotal
Hor Total Time	=	13.333;	// (usec)	= 270 chars = 2160 Pixels
Hor Addr Time	=	9.877;	// (usec)	= 200 chars = 1600 Pixels
Hor Blank Start	=	9.877;	// (usec)	= 200 chars = 1600 Pixels
Hor Blank Time	=	3.457;	// (usec)	= 70 chars = 560 Pixels
Hor Sync Start	=	10.272;	// (usec)	= 208 chars = 1664 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.395;	// (usec)	= 8 chars = 64 Pixels
Hor Sync Time	=	1.185;	// (usec)	= 24 chars = 192 Pixels
// H Back Porch	=	1.877;	// (usec)	= 38 chars = 304 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	16.667;	// (msec)	= 1250 lines HT – (1.06xHA)
Ver Addr Time	=	16.000;	// (msec)	= 1200 lines = 2.86
Ver Blank Start	=	16.000;	// (msec)	= 1200 lines
Ver Blank Time	=	0.667;	// (msec)	= 50 lines
Ver Sync Start	=	16.013;	// (msec)	= 1201 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.013;	// (msec)	= 1 lines
Ver Sync Time	=	0.040;	// (msec)	= 3 lines
// V Back Porch	=	0.613;	// (msec)	= 46 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



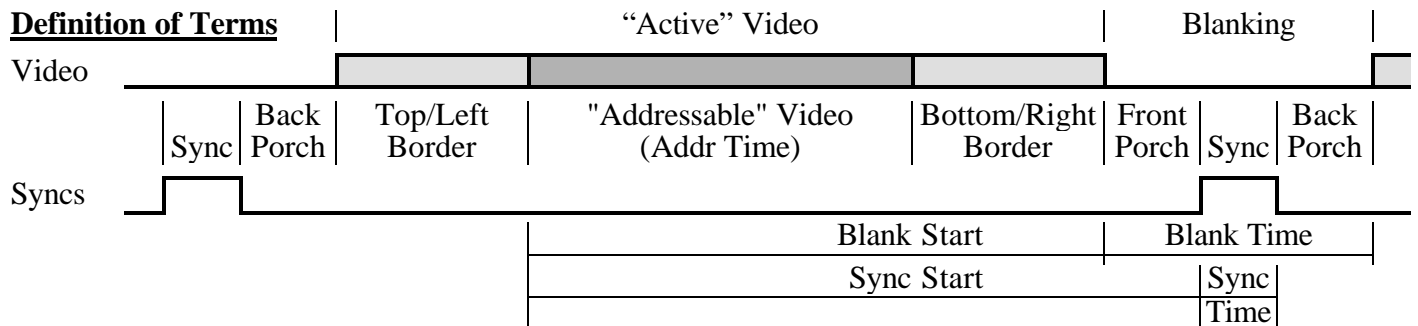
**VESA MONITOR TIMING STANDARD**

Adopted: 12/18/96  
 Resolution: 1600 x 1200 at 65 Hz (non-interlaced)  
 EDID ID: 0A9h, 045h

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>1600 x 1200 @ 65Hz;</b>		
Hor Pixels	=	<b>1600;</b>	// Pixels	
Ver Pixels	=	<b>1200;</b>	// Lines	
Hor Frequency	=	81.250;	// KHz	= 12.3 usec / line
Ver Frequency	=	65.000;	// Hz	= 15.4 msec / frame
Pixel Clock	=	<b>175.500;</b>	// MHz	= 5.7 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 45.6 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase	= 5.6 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank	= 25.9% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank	= 4.0% of VTotal
Hor Total Time	=	12.308;	// (usec)	= 270 chars = 2160 Pixels
Hor Addr Time	=	9.117;	// (usec)	= 200 chars = 1600 Pixels
Hor Blank Start	=	9.117;	// (usec)	= 200 chars = 1600 Pixels
Hor Blank Time	=	3.191;	// (usec)	= 70 chars = 560 Pixels
Hor Sync Start	=	9.481;	// (usec)	= 208 chars = 1664 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.365;	// (usec)	= 8 chars = 64 Pixels
Hor Sync Time	=	1.094;	// (usec)	= 24 chars = 192 Pixels
// H Back Porch	=	1.732;	// (usec)	= 38 chars = 304 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	15.385;	// (msec)	= 1250 lines HT – (1.06xHA)
Ver Addr Time	=	14.769;	// (msec)	= 1200 lines = 2.64
Ver Blank Start	=	14.769;	// (msec)	= 1200 lines
Ver Blank Time	=	0.615;	// (msec)	= 50 lines
Ver Sync Start	=	14.782;	// (msec)	= 1201 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.012;	// (msec)	= 1 lines
Ver Sync Time	=	0.037;	// (msec)	= 3 lines
// V Back Porch	=	0.566;	// (msec)	= 46 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



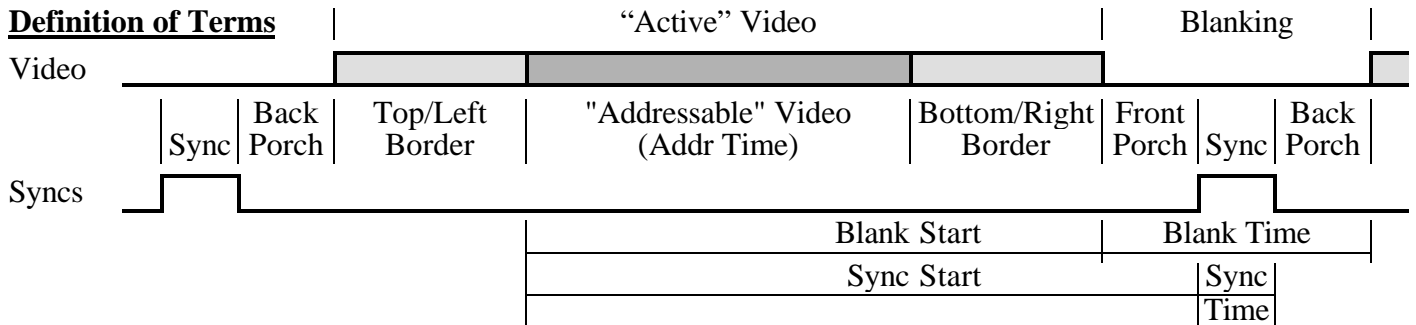
**VESA MONITOR TIMING STANDARD**

Adopted: 12/18/96  
 Resolution: 1600 x 1200 at 70 Hz (non-interlaced)  
 EDID ID: 0A9h, 04Ah

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>1600 x 1200 @ 70Hz;</b>		
Hor Pixels	=	<b>1600;</b>	// Pixels	
Ver Pixels	=	<b>1200;</b>	// Lines	
Hor Frequency	=	87.500;	// KHz	= 11.4 usec / line
Ver Frequency	=	70.000;	// Hz	= 14.3 msec / frame
Pixel Clock	=	<b>189.000;</b>	// MHz	= 5.3 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 42.3 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase	= 5.6 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank	= 25.9% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank	= 4.0% of VTotal
Hor Total Time	=	11.429;	// (usec)	= 270 chars = 2160 Pixels
Hor Addr Time	=	8.466;	// (usec)	= 200 chars = 1600 Pixels
Hor Blank Start	=	8.466;	// (usec)	= 200 chars = 1600 Pixels
Hor Blank Time	=	2.963;	// (usec)	= 70 chars = 560 Pixels
Hor Sync Start	=	8.804;	// (usec)	= 208 chars = 1664 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.339;	// (usec)	= 8 chars = 64 Pixels
Hor Sync Time	=	1.016;	// (usec)	= 24 chars = 192 Pixels
// H Back Porch	=	1.608;	// (usec)	= 38 chars = 304 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	14.286;	// (msec)	= 1250 lines HT - (1.06xHA)
Ver Addr Time	=	13.714;	// (msec)	= 1200 lines = 2.46
Ver Blank Start	=	13.714;	// (msec)	= 1200 lines
Ver Blank Time	=	0.571;	// (msec)	= 50 lines
Ver Sync Start	=	13.726;	// (msec)	= 1201 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.011;	// (msec)	= 1 lines
Ver Sync Time	=	0.034;	// (msec)	= 3 lines
// V Back Porch	=	0.526;	// (msec)	= 46 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



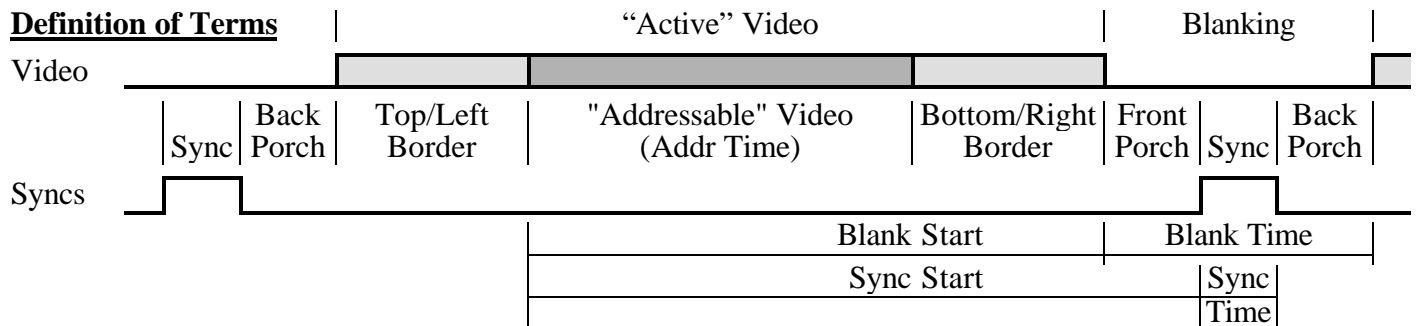
**VESA MONITOR TIMING STANDARD**

Adopted: 12/18/96  
 Resolution: 1600 x 1200 at 75 Hz (non-interlaced)  
 EDID ID: 0A9h, 04Fh

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>1600 x 1200 @ 75Hz;</b>		
Hor Pixels	=	<b>1600;</b>	// Pixels	
Ver Pixels	=	<b>1200;</b>	// Lines	
Hor Frequency	=	93.750;	// KHz	= 10.7 usec / line
Ver Frequency	=	75.000;	// Hz	= 13.3 msec / frame
Pixel Clock	=	<b>202.500;</b>	// MHz	= 4.9 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 39.5 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase	= 5.6 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank	= 25.9% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank	= 4.0% of VTotal
Hor Total Time	=	10.667;	// (usec)	= 270 chars = 2160 Pixels
Hor Addr Time	=	7.901;	// (usec)	= 200 chars = 1600 Pixels
Hor Blank Start	=	7.901;	// (usec)	= 200 chars = 1600 Pixels
Hor Blank Time	=	2.765;	// (usec)	= 70 chars = 560 Pixels
Hor Sync Start	=	8.217;	// (usec)	= 208 chars = 1664 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.316;	// (usec)	= 8 chars = 64 Pixels
Hor Sync Time	=	0.948;	// (usec)	= 24 chars = 192 Pixels
// H Back Porch	=	1.501;	// (usec)	= 38 chars = 304 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	13.333;	// (msec)	= 1250 lines HT – (1.06xHA)
Ver Addr Time	=	12.800;	// (msec)	= 1200 lines = 2.29
Ver Blank Start	=	12.800;	// (msec)	= 1200 lines
Ver Blank Time	=	0.533;	// (msec)	= 50 lines
Ver Sync Start	=	12.811;	// (msec)	= 1201 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.011;	// (msec)	= 1 lines
Ver Sync Time	=	0.032;	// (msec)	= 3 lines
// V Back Porch	=	0.491;	// (msec)	= 46 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



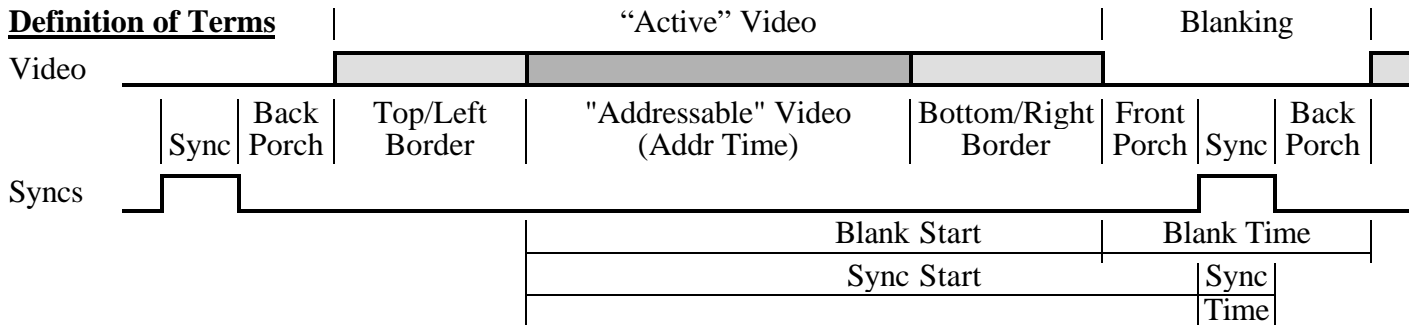
**VESA MONITOR TIMING STANDARD**

Adopted: 12/18/96  
 Resolution: 1600 x 1200 at 85 Hz (non-interlaced)  
 EDID ID: 0A9h, 059h

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>1600 x 1200 @ 85Hz;</b>		
Hor Pixels	=	<b>1600;</b>	// Pixels	
Ver Pixels	=	<b>1200;</b>	// Lines	
Hor Frequency	=	106.250;	// KHz	= 9.4 usec / line
Ver Frequency	=	85.000;	// Hz	= 11.8 msec / frame
Pixel Clock	=	<b>229.500;</b>	// MHz	= 4.4 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 34.9 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase	= 5.6 %
Hor Sync Polarity	=	<b>POSITIVE;</b>	// HBlank	= 25.9% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank	= 4.0% of VTotal
Hor Total Time	=	9.412;	// (usec)	= 270 chars = 2160 Pixels
Hor Addr Time	=	6.972;	// (usec)	= 200 chars = 1600 Pixels
Hor Blank Start	=	6.972;	// (usec)	= 200 chars = 1600 Pixels
Hor Blank Time	=	2.440;	// (usec)	= 70 chars = 560 Pixels
Hor Sync Start	=	7.251;	// (usec)	= 208 chars = 1664 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.279;	// (usec)	= 8 chars = 64 Pixels
Hor Sync Time	=	0.837;	// (usec)	= 24 chars = 192 Pixels
// H Back Porch	=	1.325;	// (usec)	= 38 chars = 304 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	11.765;	// (msec)	= 1250 lines HT – (1.06xHA)
Ver Addr Time	=	11.294;	// (msec)	= 1200 lines = 2.02
Ver Blank Start	=	11.294;	// (msec)	= 1200 lines
Ver Blank Time	=	0.471;	// (msec)	= 50 lines
Ver Sync Start	=	11.304;	// (msec)	= 1201 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.009;	// (msec)	= 1 lines
Ver Sync Time	=	0.028;	// (msec)	= 3 lines
// V Back Porch	=	0.433;	// (msec)	= 46 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**

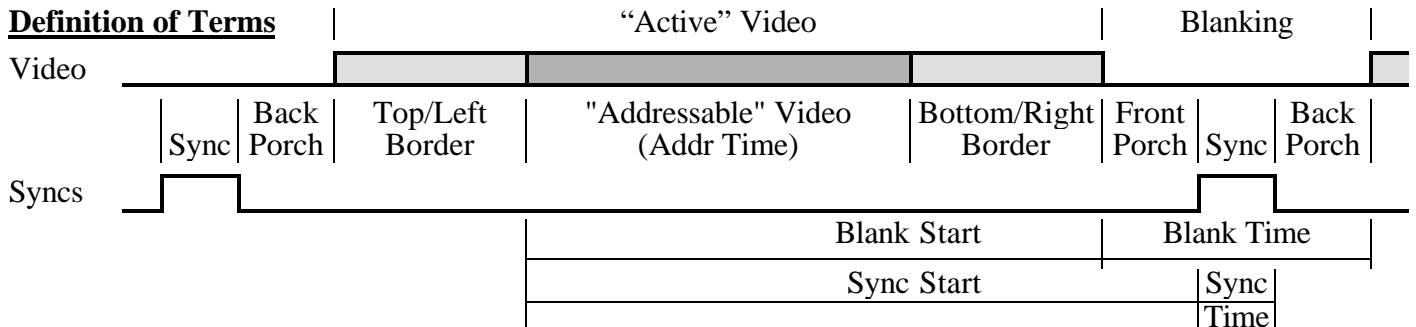


**VESA MONITOR TIMING STANDARD**

Adopted: 9/17/98  
 Resolution: 1792 x 1344 at 60 Hz (non-interlaced)  
 EDID ID: 0C1h, 040h

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	= <b>1792x1344 @ 60 Hz</b>		
Hor Pixels	= <b>1792;</b>	// Pixels	
Ver Pixels	= <b>1344;</b>	// Lines	
Hor Frequency	= 83.640;	// KHz	= 12.0 usec / line
Ver Frequency	= 60.000;	// Hz	= 16.7 msec / frame
Pixel Clock	= <b>204.750;</b>	// MHz	= 4.9 nsec ± 0.5%
Character Width	= <b>8;</b>	// Pixels	= 39.1 nsec
Scan Type	= <b>NONINTERLACED;</b>	// H Phase	= 4.1 %
Hor Sync Polarity	= <b>NEGATIVE;</b>	// HBlank	= 26.8% of HTotal
Ver Sync Polarity	= <b>POSITIVE;</b>	// VBlank	= 3.6% of VTotal
Hor Total Time	= 11.956;	// (usec)	= 306 chars = 2448 Pixels
Hor Addr Time	= 8.752;	// (usec)	= 224 chars = 1792 Pixels
Hor Blank Start	= 8.752;	// (usec)	= 224 chars = 1792 Pixels
Hor Blank Time	= 3.204;	// (usec)	= 82 chars = 656 Pixels
Hor Sync Start	= 9.377;	// (usec)	= 240 chars = 1920 Pixels
// H Right Border	= 0.000;	// (usec)	= <b>0</b> chars = 0 Pixels
// H Front Porch	= 0.625;	// (usec)	= <b>16</b> chars = 128 Pixels
Hor Sync Time	= 0.977;	// (usec)	= <b>25</b> chars = 200 Pixels
// H Back Porch	= 1.602;	// (usec)	= <b>41</b> chars = 328 Pixels
// H Left Border	= 0.000;	// (usec)	= <b>0</b> chars = 0 Pixels
Ver Total Time	= 16.667;	// (msec)	= 1394 lines HT – (1.06xHA)
Ver Addr Time	= 16.069;	// (msec)	= 1344 lines = 2.68
Ver Blank Start	= 16.069;	// (msec)	= 1344 lines
Ver Blank Time	= 0.598;	// (msec)	= 50 lines
Ver Sync Start	= 16.081;	// (msec)	= 1345 lines
// V Bottom Border	= 0.000;	// (msec)	= <b>0</b> lines
// V Front Porch	= 0.012;	// (msec)	= <b>1</b> lines
Ver Sync Time	= 0.036;	// (msec)	= <b>3</b> lines
// V Back Porch	= 0.550;	// (msec)	= <b>46</b> lines
// V Top Border	= 0.000;	// (msec)	= <b>0</b> lines

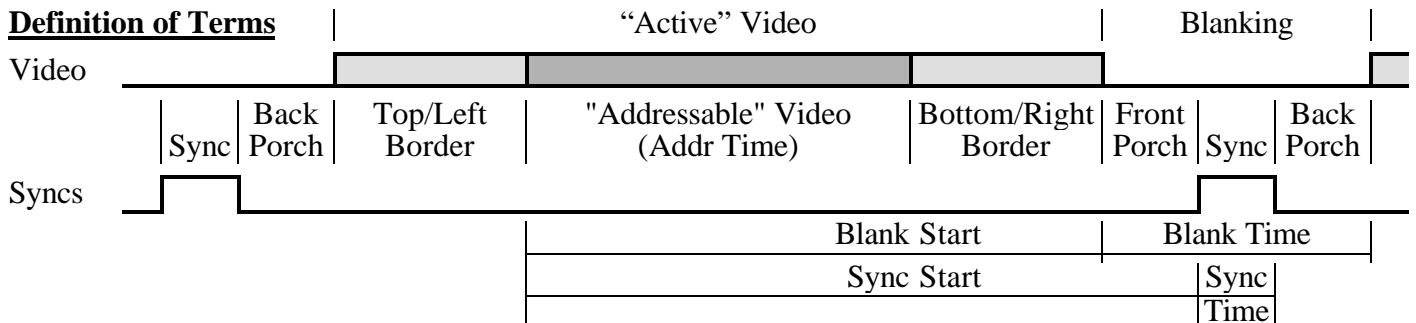


**VESA MONITOR TIMING STANDARD**

Adopted: 9/17/98  
 Resolution: 1792 x 1344 at 75 Hz (non-interlaced)  
 EDID ID: 0C1h, 04Fh

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>1792x1344 @ 75 Hz;</b>		
Hor Pixels	=	<b>1792;</b>	// Pixels	
Ver Pixels	=	<b>1344;</b>	// Lines	
Hor Frequency	=	106.270;	// KHz	= 9.4 usec / line
Ver Frequency	=	74.997;	// Hz	= 13.3 msec / frame
Pixel Clock	=	<b>261.000;</b>	// MHz	= 3.8 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 30.7 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase	= 5.2 %
Hor Sync Polarity	=	<b>NEGATIVE;</b>	// HBlank	= 27.0% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank	= 5.2% of VTotal
Hor Total Time	=	9.410;	// (usec)	= 307 chars = 2456 Pixels
Hor Addr Time	=	6.866;	// (usec)	= 224 chars = 1792 Pixels
Hor Blank Start	=	6.866;	// (usec)	= 224 chars = 1792 Pixels
Hor Blank Time	=	2.544;	// (usec)	= 83 chars = 664 Pixels
Hor Sync Start	=	7.234;	// (usec)	= 236 chars = 1888 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.368;	// (usec)	= 12 chars = 96 Pixels
Hor Sync Time	=	0.828;	// (usec)	= 27 chars = 216 Pixels
// H Back Porch	=	1.349;	// (usec)	= 44 chars = 352 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	13.334;	// (msec)	= 1417 lines HT – (1.06xHA)
Ver Addr Time	=	12.647;	// (msec)	= 1344 lines = 2.13
Ver Blank Start	=	12.647;	// (msec)	= 1344 lines
Ver Blank Time	=	0.687;	// (msec)	= 73 lines
Ver Sync Start	=	12.656;	// (msec)	= 1345 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.009;	// (msec)	= 1 lines
Ver Sync Time	=	0.028;	// (msec)	= 3 lines
// V Back Porch	=	0.649;	// (msec)	= 69 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

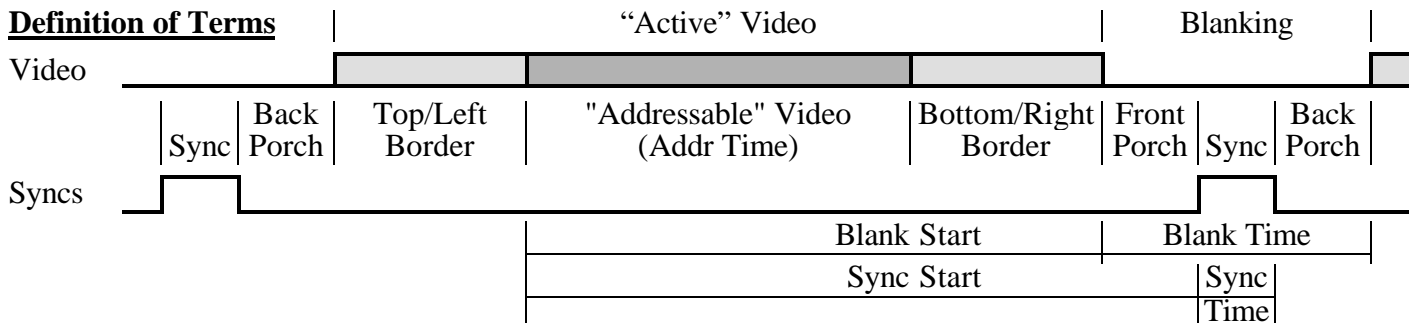


**VESA MONITOR TIMING STANDARD**

Adopted: 9/17/98  
 Resolution: 1856 x 1392 at 60 Hz (non-interlaced)  
 EDID ID: 0C9h, 040h

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	= <b>1856 x 1392 at 60 Hz;</b>		
Hor Pixels	= <b>1856;</b>	// Pixels	
Ver Pixels	= <b>1392;</b>	// Lines	
Hor Frequency	= 86.333;	// KHz	= 11.6 usec / line
Ver Frequency	= 59.995;	// Hz	= 16.7 msec / frame
Pixel Clock	= <b>218.250;</b>	// MHz	= 4.6 nsec ± 0.5%
Character Width	= <b>8;</b>	// Pixels	= 36.7 nsec
Scan Type	= <b>NONINTERLACED;</b>	// H Phase	= 5.1 %
Hor Sync Polarity	= <b>NEGATIVE;</b>	// HBlank	= 26.6% of HTotal
Ver Sync Polarity	= <b>POSITIVE;</b>	// VBlank	= 3.3% of VTotal
Hor Total Time	= 11.583;	// (usec)	= 316 chars = 2528 Pixels
Hor Addr Time	= 8.504;	// (usec)	= 232 chars = 1856 Pixels
Hor Blank Start	= 8.504;	// (usec)	= 232 chars = 1856 Pixels
Hor Blank Time	= 3.079;	// (usec)	= 84 chars = 672 Pixels
Hor Sync Start	= 8.944;	// (usec)	= 244 chars = 1952 Pixels
// H Right Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	= 0.440;	// (usec)	= 12 chars = 96 Pixels
Hor Sync Time	= 1.026;	// (usec)	= 28 chars = 224 Pixels
// H Back Porch	= 1.613;	// (usec)	= 44 chars = 352 Pixels
// H Left Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	= 16.668;	// (msec)	= 1439 lines HT – (1.06xHA)
Ver Addr Time	= 16.124;	// (msec)	= 1392 lines = 2.57
Ver Blank Start	= 16.124;	// (msec)	= 1392 lines
Ver Blank Time	= 0.544;	// (msec)	= 47 lines
Ver Sync Start	= 16.135;	// (msec)	= 1393 lines
// V Bottom Border	= 0.000;	// (msec)	= 0 lines
// V Front Porch	= 0.012;	// (msec)	= 1 lines
Ver Sync Time	= 0.035;	// (msec)	= 3 lines
// V Back Porch	= 0.498;	// (msec)	= 43 lines
// V Top Border	= 0.000;	// (msec)	= 0 lines

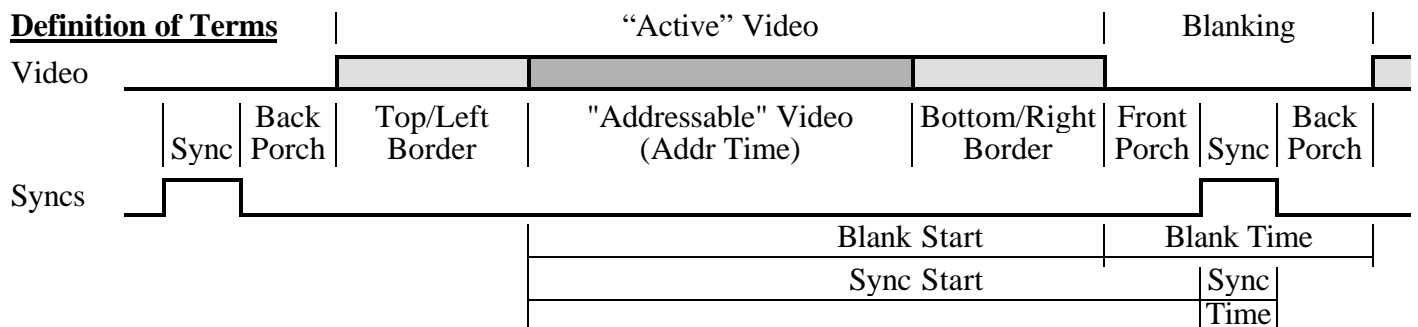


**VESA MONITOR TIMING STANDARD**

Adopted: 9/17/98  
 Resolution: 1856 x 1392 at 75 Hz (non-interlaced)  
 EDID ID: 0C9h, 04Fh

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>1856 x 1392 @ 75 Hz;</b>	
Hor Pixels	=	<b>1856;</b>	// Pixels
Ver Pixels	=	<b>1392;</b>	// Lines
Hor Frequency	=	112.500;	// KHz = 8.9 usec / line
Ver Frequency	=	75.000;	// Hz = 13.3 msec / frame
Pixel Clock	=	<b>288.000;</b>	// MHz = 3.5 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels = 27.8 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase = 4.4 %
Hor Sync Polarity	=	<b>NEGATIVE;</b>	// HBlank = 27.5% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank = 7.2% of VTotal
Hor Total Time	=	8.889;	// (usec) = 320 chars = 2560 Pixels
Hor Addr Time	=	6.444;	// (usec) = 232 chars = 1856 Pixels
Hor Blank Start	=	6.444;	// (usec) = 232 chars = 1856 Pixels
Hor Blank Time	=	2.444;	// (usec) = 88 chars = 704 Pixels
Hor Sync Start	=	6.889;	// (usec) = 248 chars = 1984 Pixels
// H Right Border	=	0.000;	// (usec) = 0 chars = 0 Pixels
// H Front Porch	=	0.444;	// (usec) = 16 chars = 128 Pixels
Hor Sync Time	=	0.778;	// (usec) = 28 chars = 224 Pixels
// H Back Porch	=	1.222;	// (usec) = 44 chars = 352 Pixels
// H Left Border	=	0.000;	// (usec) = 0 chars = 0 Pixels
Ver Total Time	=	13.333;	// (msec) = 1500 lines HT – (1.06xHA)
Ver Addr Time	=	12.373;	// (msec) = 1392 lines = 2.06
Ver Blank Start	=	12.373;	// (msec) = 1392 lines
Ver Blank Time	=	0.960;	// (msec) = 108 lines
Ver Sync Start	=	12.382;	// (msec) = 1393 lines
// V Bottom Border	=	0.000;	// (msec) = 0 lines
// V Front Porch	=	0.009;	// (msec) = 1 lines
Ver Sync Time	=	0.027;	// (msec) = 3 lines
// V Back Porch	=	0.924;	// (msec) = 104 lines
// V Top Border	=	0.000;	// (msec) = 0 lines



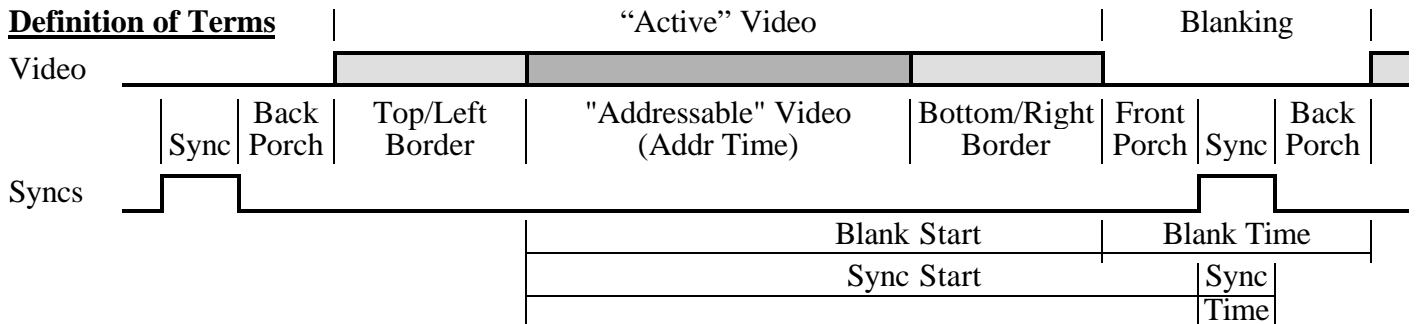
**VESA MONITOR TIMING STANDARD**

Adopted: 9/17/98  
 Resolution: 1920 x 1440 at 60 Hz (non-interlaced)  
 EDID ID: 0D1h, 040h

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	=	<b>1920 x 1440 @ 60 Hz;</b>		
Hor Pixels	=	<b>1920;</b>	// Pixels	
Ver Pixels	=	<b>1440;</b>	// Lines	
Hor Frequency	=	90.000;	// KHz	= 11.1 usec / line
Ver Frequency	=	60.000;	// Hz	= 16.7 msec / frame
Pixel Clock	=	<b>234.000;</b>	// MHz	= 4.3 nsec ± 0.5%
Character Width	=	<b>8;</b>	// Pixels	= 34.2 nsec
Scan Type	=	<b>NONINTERLACED;</b>	// H Phase	= 4.2 %
Hor Sync Polarity	=	<b>NEGATIVE;</b>	// HBlank	= 26.2% of HTotal
Ver Sync Polarity	=	<b>POSITIVE;</b>	// VBlank	= 4.0% of VTotal
Hor Total Time	=	11.111;	// (usec)	= 325 chars = 2600 Pixels
Hor Addr Time	=	8.205;	// (usec)	= 240 chars = 1920 Pixels
Hor Blank Start	=	8.205;	// (usec)	= 240 chars = 1920 Pixels
Hor Blank Time	=	2.906;	// (usec)	= 85 chars = 680 Pixels
Hor Sync Start	=	8.752;	// (usec)	= 256 chars = 2048 Pixels
// H Right Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	=	0.547;	// (usec)	= 16 chars = 128 Pixels
Hor Sync Time	=	0.889;	// (usec)	= 26 chars = 208 Pixels
// H Back Porch	=	1.470;	// (usec)	= 43 chars = 344 Pixels
// H Left Border	=	0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	=	16.667;	// (msec)	= 1500 lines HT – (1.06xHA)
Ver Addr Time	=	16.000;	// (msec)	= 1440 lines = 2.41
Ver Blank Start	=	16.000;	// (msec)	= 1440 lines
Ver Blank Time	=	0.667;	// (msec)	= 60 lines
Ver Sync Start	=	16.011;	// (msec)	= 1441 lines
// V Bottom Border	=	0.000;	// (msec)	= 0 lines
// V Front Porch	=	0.011;	// (msec)	= 1 lines
Ver Sync Time	=	0.033;	// (msec)	= 3 lines
// V Back Porch	=	0.622;	// (msec)	= 56 lines
// V Top Border	=	0.000;	// (msec)	= 0 lines

**Definition of Terms**



**VESA MONITOR TIMING STANDARD**

Adopted: 9/17/98  
 Resolution: 1920 x 1440 at 75 Hz (non-interlaced)  
 EDID ID: 0D1h, 04Fh

Video Display Information Format (VDIF)  
PreAdjusted Timing Data

Timing Name	= <b>1920 x 1440 @ 75Hz;</b>		
Hor Pixels	= <b>1920;</b>	// Pixels	
Ver Pixels	= <b>1440;</b>	// Lines	
Hor Frequency	= 112.500;	// KHz	= 8.9 usec / line
Ver Frequency	= 75.000;	// Hz	= 13.3 msec / frame
Pixel Clock	= <b>297.000;</b>	// MHz	= 3.4 nsec ± 0.5%
Character Width	= <b>8;</b>	// Pixels	= 26.9 nsec
Scan Type	= <b>NONINTERLACED;</b>	// H Phase	= 3.9 %
Hor Sync Polarity	= <b>NEGATIVE</b>	// HBlank	= 27.3% of HTotal
Ver Sync Polarity	= <b>POSITIVE;</b>	// VBlank	= 4.0% of VTotal
Hor Total Time	= 8.889;	// (usec)	= 330 chars = 2640 Pixels
Hor Addr Time	= 6.465;	// (usec)	= 240 chars = 1920 Pixels
Hor Blank Start	= 6.465;	// (usec)	= 240 chars = 1920 Pixels
Hor Blank Time	= 2.424;	// (usec)	= 90 chars = 720 Pixels
Hor Sync Start	= 6.949;	// (usec)	= 258 chars = 2064 Pixels
// H Right Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
// H Front Porch	= 0.485;	// (usec)	= 18 chars = 144 Pixels
Hor Sync Time	= 0.754;	// (usec)	= 28 chars = 224 Pixels
// H Back Porch	= 1.185;	// (usec)	= 44 chars = 352 Pixels
// H Left Border	= 0.000;	// (usec)	= 0 chars = 0 Pixels
Ver Total Time	= 13.333;	// (msec)	= 1500 lines HT – (1.06xHA)
Ver Addr Time	= 12.800;	// (msec)	= 1440 lines = 2.04
Ver Blank Start	= 12.800;	// (msec)	= 1440 lines
Ver Blank Time	= 0.533;	// (msec)	= 60 lines
Ver Sync Start	= 12.809;	// (msec)	= 1441 lines
// V Bottom Border	= 0.000;	// (msec)	= 0 lines
// V Front Porch	= 0.009;	// (msec)	= 1 lines
Ver Sync Time	= 0.027;	// (msec)	= 3 lines
// V Back Porch	= 0.498;	// (msec)	= 56 lines
// V Top Border	= 0.000;	// (msec)	= 0 lines

**Definition of Terms**

