

Eliandas ISA VGA card roundup

Here are results from various ISA VGA cards benched on a fast system (Pentium III 800 MHz).

3DBench2 and PC Player benchmark in VGA mode show the performance in standard 320x200 256 color mode. The Doom benchmark uses ModeX which has a different performance characteristic. These three benches are comparable to Phils VGA Benchmark results.

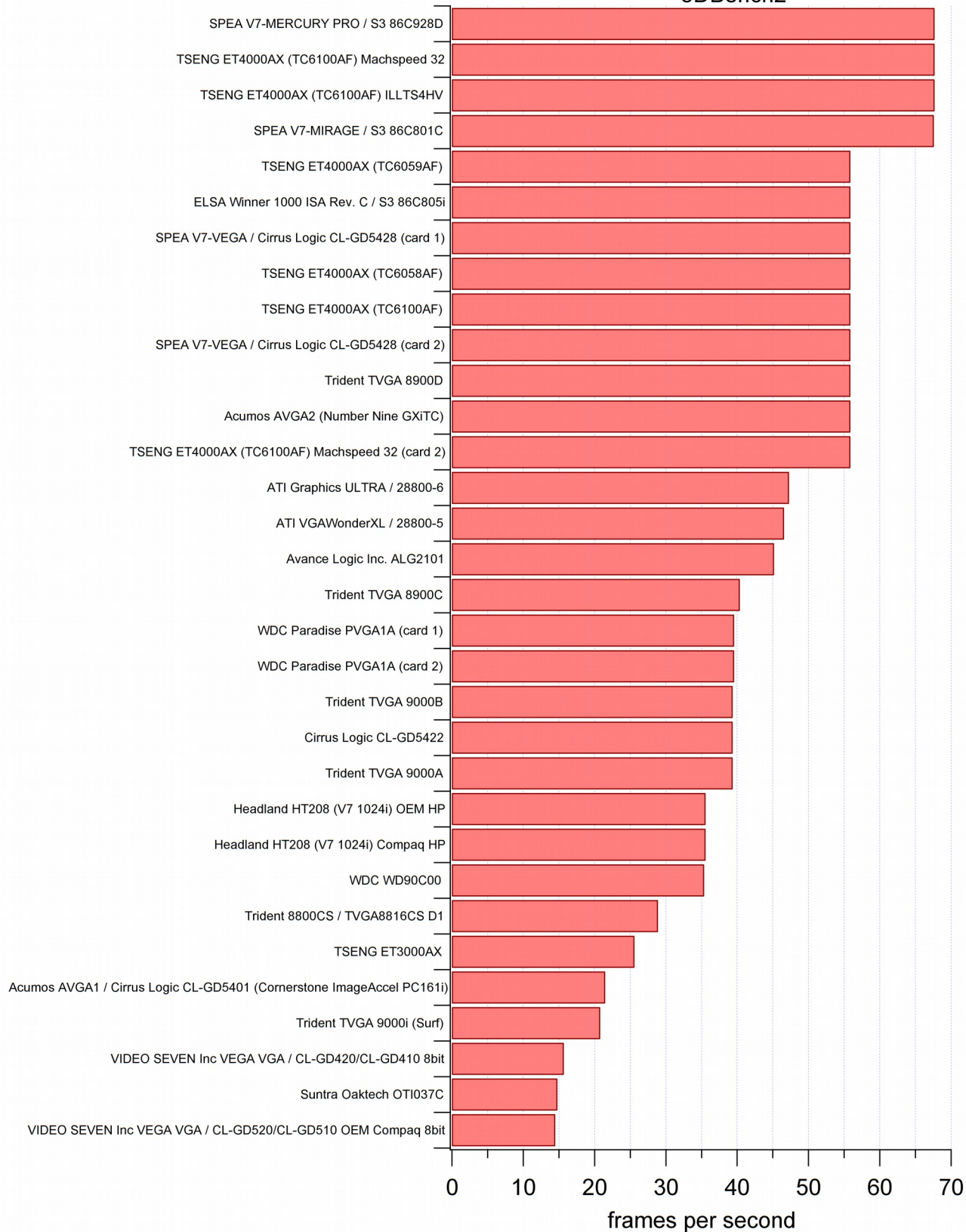
For Super-VGA capable cards (512 kB and more) PC Player benchmark in 640x480 256 color mode (mode 101) was used. This is the most common mode old Super VGA games (e.g. Sim City 2000) use. VSPEED gives results for transfer rate for the same mode. ISA cards do not feature linear frame buffer. Generally ISA cards do not reach high full screen frame rates due to bandwidth limitations in this mode.

Cards list

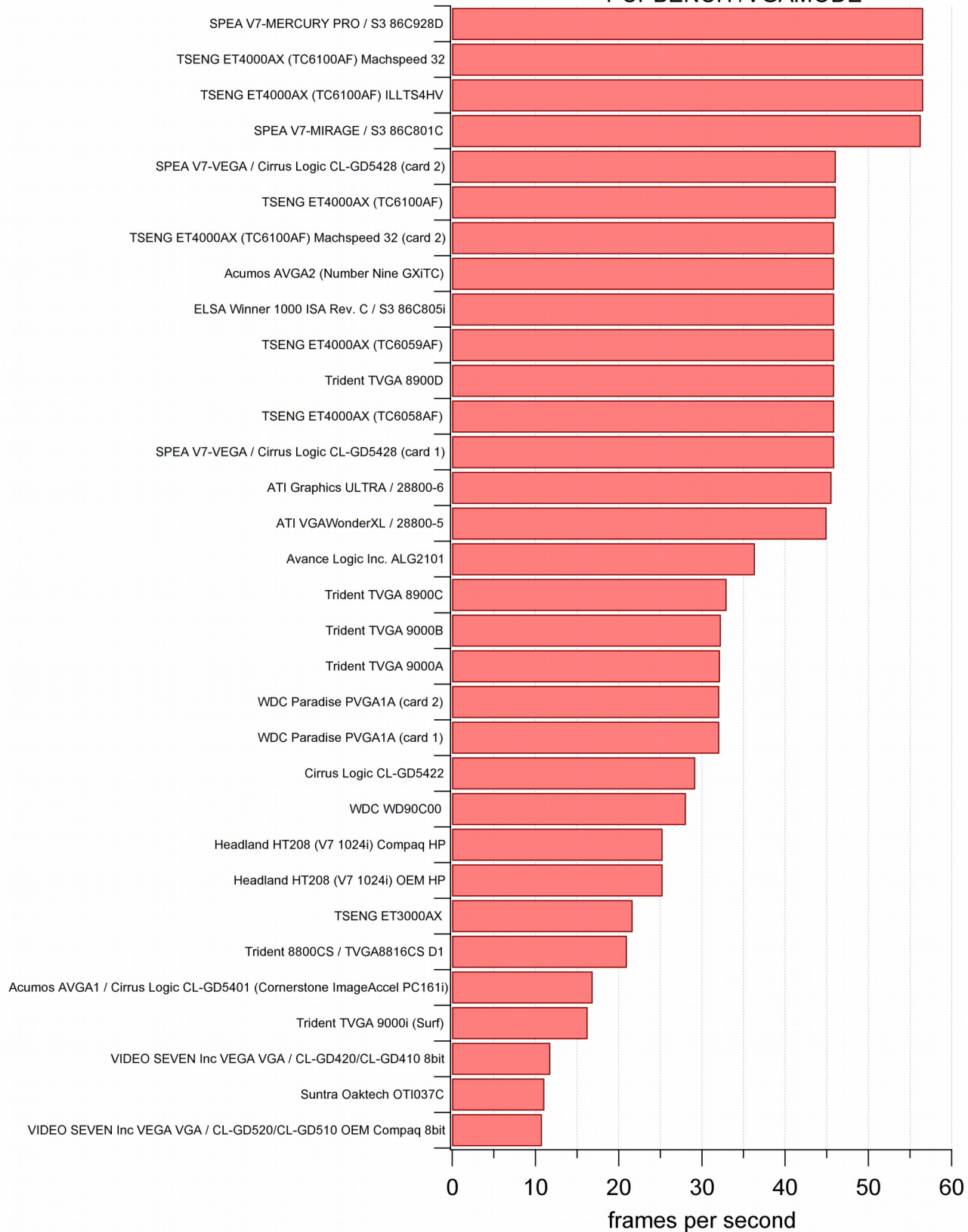
SPEA V7-MERCURY PRO / S3 86C928D
TSENG ET4000AX (TC6100AF) Machspeed 32
TSENG ET4000AX (TC6100AF) ILLTS4HV
SPEA V7-MIRAGE / S3 86C801C
TSENG ET4000AX (TC6059AF)
ELSA Winner 1000 ISA Rev. C / S3 86C805i
SPEA V7-VEGA / Cirrus Logic CL-GD5428 (card 1)
TSENG ET4000AX (TC6058AF)
TSENG ET4000AX (TC6100AF)
SPEA V7-VEGA / Cirrus Logic CL-GD5428 (card 2)
Trident TVGA 8900D
Acumos AVGA2 (Number Nine GXiTC)
TSENG ET4000AX (TC6100AF) Machspeed 32 (card 2)
ATI Graphics ULTRA / 28800-6
ATI VGAWonderXL / 28800-5
Avance Logic Inc. ALG2101
Trident TVGA 8900C
WDC Paradise PVGA1A (card 1)
WDC Paradise PVGA1A (card 2)
Trident TVGA 9000B
Cirrus Logic CL-GD5422
Trident TVGA 9000A
Headland HT208 (V7 1024i) OEM HP
Headland HT208 (V7 1024i) Compaq HP
WDC WD90C00
Trident 8800CS / TVGA8816CS D1
TSENG ET3000AX
Acumos AVGA1 / Cirrus Logic CL-GD5401 (Cornerstone ImageAccel PC161i)
Trident TVGA 9000i (Surf)
VIDEO SEVEN Inc VEGA VGA / CL-GD420/CL-GD410 8bit
Suntra Oaktech OTI037C
VIDEO SEVEN Inc VEGA VGA / CL-GD520/CL-GD510 OEM Compaq 8bit

The two ATI VGA Wonder core cards have compatibility problems with the GA-6BXU and I replaced the system with an Abit KT7A + Thunderbird 1400C. Results should be comparable to the Pentium-III 800 MHz.

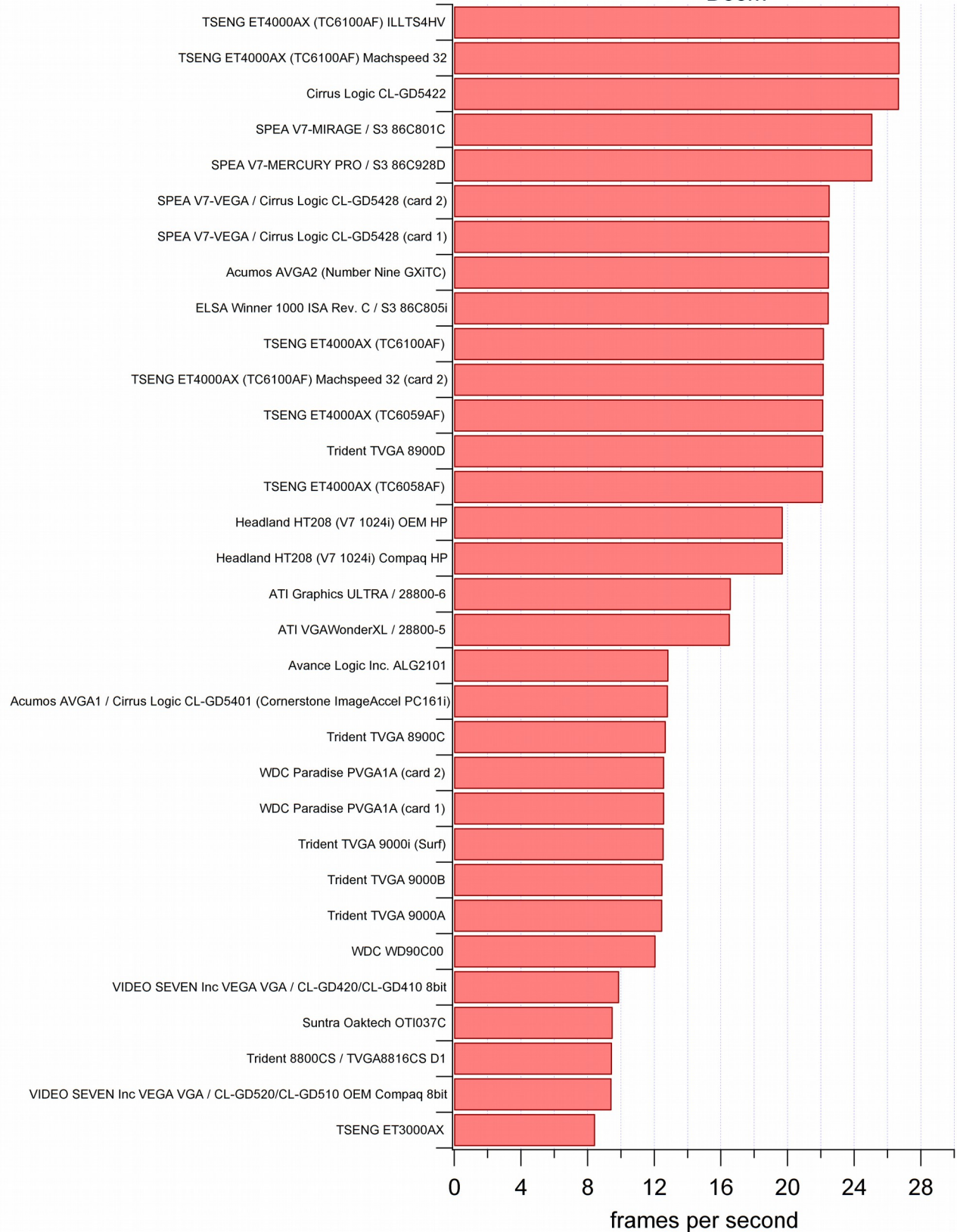
3DBench2



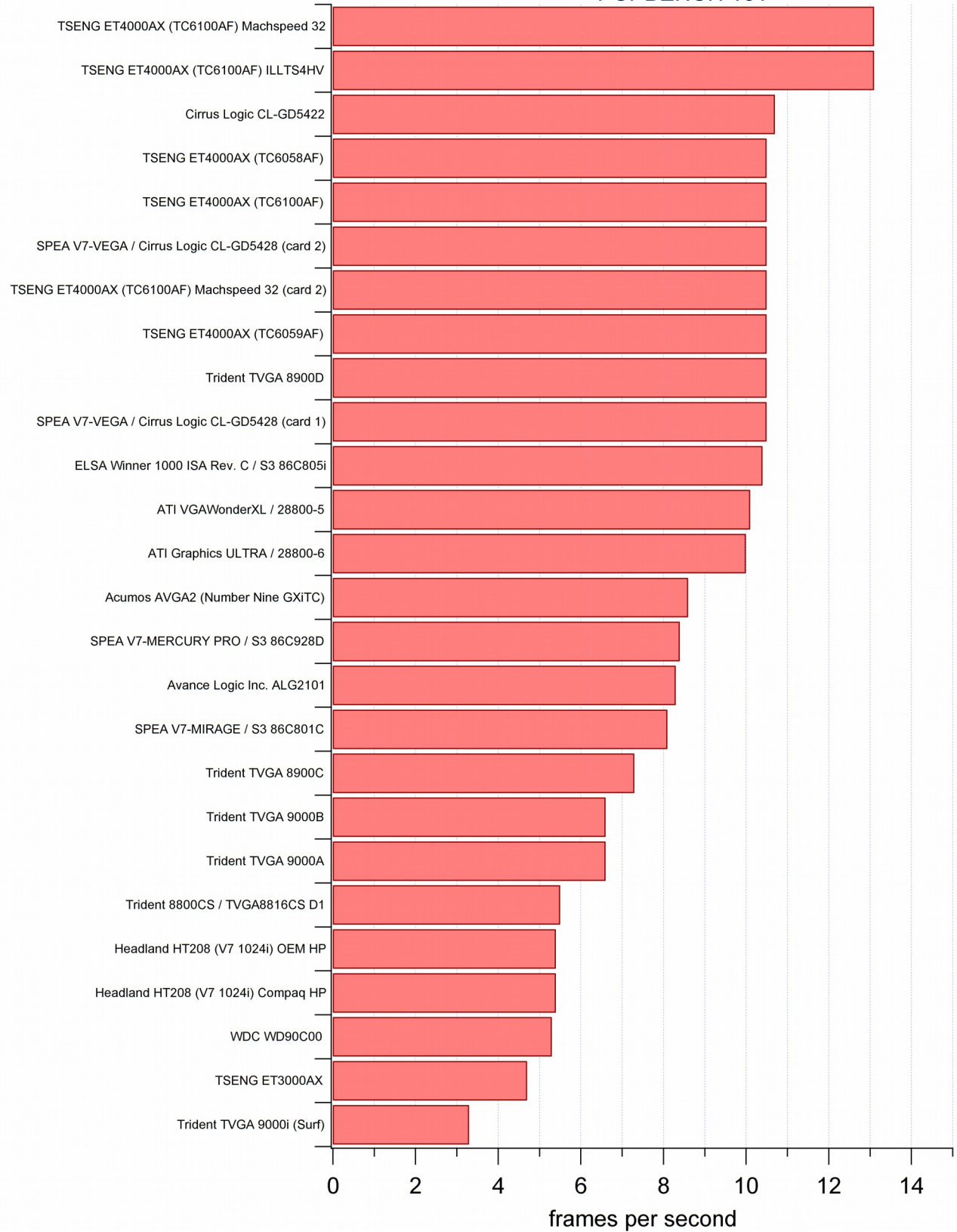
PCPBENCH /VGAMODE



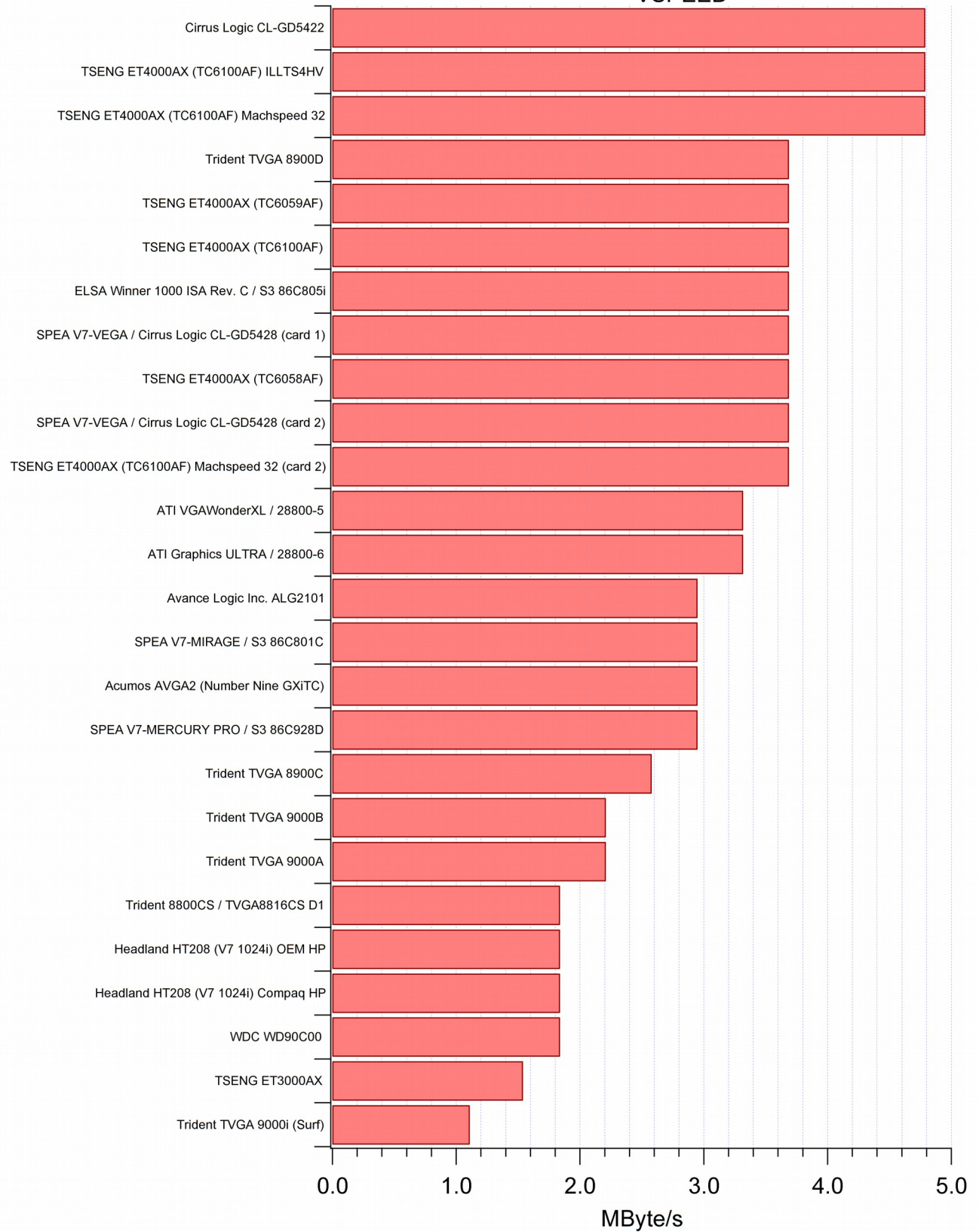
Doom



PCPBENCH 101



VSPEED



Benchmark system:

P3 800 MHz Coppermine
Gigabyte GA-6BXU (i440BX chipset)
256 MB SDRAM PC100 CAS 2
System/Video BIOS cacheable
ISA clock 8.33 MHz (PCI clock/4)
MS-DOS 7.1, clean boot

Cards properties and results

Trident TVGA 8900C

FCC-ID: HNG8916CX248LC2
1024 kB RAM
BIOS message F-B8-V16
BIOS version C3.01
BIOS Date 01/17/92
32 kB
8 bit DAC, 66 MHz, MUSIC
VESA 1.2
70 ns DRAM

3DBench2: 40.4
PCPBench /VGAMODE: 33.0
PCPBench 101: 7.3
VSPEED banked 101: 2.58 MByte/s
DOOM:5880

Trident TVGA 9000B

FCC-ID: HNG2VPTVGA06x4LT2
512 kB RAM
BIOS message F-B16-2W-V16
BIOS version D3.0
BIOS Date 11/12/91
32 kB
8 bit DAC, ?? MHz, SC
VESA 1.2
70 ns DRAM

3DBench2: 39.4
PCPBench /VGAMODE: 32.3
PCPBench 101: 6.6
VSPEED banked 101: 2.21 MByte/s
DOOM:5975

TSENG ET4000AX (TC6059AF)

FCC-ID: ICUEVGA-GWV22

1024 kB RAM

BIOS message -

BIOS version -

BIOS Date 09/14/90

32 kB

8 bit DAC, 66 MHz, MUSIC

VESA -

80 ns DRAM

3DBench2: 55.9

PCPBench /VGAMODE: 45.9

PCPBench 101: 10.5 (UNIVBE 5.1)

VSPEED banked 101: 3.69 MByte/s

DOOM:3371

ELSA Winner 1000 ISA Rev. C/ S3 86C805i

FCC-ID: ?

2048 kB RAM

BIOS message -

BIOS version 1.02.01

BIOS Date 07/08/94

32 kB

Sierra DAC 32k/64k, 135 MHz, STG1700J-13Z

VESA 1.2 / VBE PM 1.0

70 ns DRAM

3DBench2: 55.9

PCPBench /VGAMODE: 45.9

PCPBench 101: 10.4

VSPEED banked 101: 3.69 MByte/s

DOOM:3323

SPEA V7-VEGA / Cirrus CL-GD5428

FCC-ID: ?
1024 kB RAM
BIOS message -
BIOS version 1.30
BIOS Date 07/08/93
32 kB
DAC: CL internal CL24 TrueColor 86 MHz
VESA 1.2
70 ns DRAM

3DBench2: 55.9
PCPBench /VGAMODE: 45.9
PCPBench 101: 10.5
VSPEED banked 101: 3.69 MByte/s
DOOM:3318

SPEA V7-MIRAGE / S3 86C801C

FCC-ID: ?
2048 kB RAM
BIOS message -
BIOS version 4.01
BIOS Date 10/28/93
32 kB
DAC: ATT20C491-11 110 MHz
VESA -
60 ns DRAM + 45 ns in sockets

3DBench2: 67.6
PCPBench /VGAMODE: 56.3
PCPBench 101: 8.1 (V7MIPVBE 1.13 → VESA 1.2)
VSPEED banked 101: 2.95 MByte/s (V7MIPVBE 1.13 → VESA 1.2)
DOOM:2976

VIDEO SEVEN INC VEGA VGA/ CL-GD420 / CL-GD410

FCC-ID: D2A62L1989V5

256 kB RAM

BIOS message -

BIOS version 1.12

BIOS Date 03/26/88

32 kB

DAC: inmos IM5G176S-40 40 MHz

VESA -

120 ns DRAM

3DBench2: 15.7

PCPBench /VGAMODE: 11.8

PCPBench 101: no SuperVGA

VSPEED banked 101: no SuperVGA

DOOM:7546

SPEA V7-MERCURY PRO / S3 86C928D

FCC-ID: ?
4096 kB RAM
BIOS message -
BIOS version 3.00
BIOS Date 09/07/93
32 kB
DAC: Ti PTVP3020-170MDN 170 MHz
VESA -
70 ns DRAM

3DBench2: 67.7
PCPBench /VGAMODE: 56.6
PCPBench 101: 8.4 (V7PROVBE 1.12 → VESA 1.2)
VSPEED banked 101: 2.95 MByte/s (V7PROVBE 1.12 → VESA 1.2)
DOOM:2976

Cornerstone ImageAccel PC161i / CL-GD5401 (previously Acumos AVGA1)

FCC-ID: ?
256 kB RAM
BIOS message -
BIOS version: PhoenixVIEW(tm) VGA-Compatible BIOS Version
BIOS Date 1992
24 kB
DAC: Integrated or 220 MHz BT467
VESA -
60 ns DRAM

3DBench2: 21.5
PCPBench /VGAMODE: 16.9
PCPBench 101: -
VSPEED banked 101: -
DOOM:5819

Trident 8800CS / TVGA8816CS_D1

FCC-ID: ?
512 kB RAM
BIOS message D4-129
BIOS version: D4-129
BIOS Date 07/05/89
32 kB
DAC: 50 MHz 8 bit
VESA -
80 ns DRAM

3DBench2: 28.9
PCPBench /VGAMODE: 21.0
PCPBench 101: 5.5 (UNIVBE 5.1)
VSPEED banked 101: 1.84 MByte/s (UNIVBE 5.1)
DOOM:7880

Cirrus Logic CL-GD5422

FCC-ID: J6QGD5422DM2
1024 kB RAM
BIOS message -
BIOS version: 1.10
BIOS Date 11/20/92
32 kB
DAC: integrated
VESA 1.2
70 ns DRAM

3DBench2: 39.4
PCPBench /VGAMODE: 29.2
PCPBench 101: 10.7
VSPEED banked 101: 4.79 MByte/s
DOOM:2797

Trident TVGA 9000A

FCC-ID: HNG2YPTVGA06X4LS2

512 kB RAM

BIOS message -

BIOS version: D2.11

BIOS Date 05/16/91

32 kB

DAC: 66 MHz MUSIC 8 bit

VESA -

80 ns DRAM

3DBench2: 39.4

PCPBench /VGAMODE: 32.2

PCPBench 101: 6.6 (UNIVBE 5.1)

VSPEED banked 101: 2.21 MByte/s (UNIVBE 5.1)

DOOM:5979

WDC Paradise PVGA1A

FCC-ID: DBM5UEVGAPROF

256 kB RAM

BIOS message -

BIOS version:

BIOS Date 07/14/88

24 kB

DAC: 40 MHz INMOS 8 bit

VESA -

100 ns DRAM

3DBench2: 39.6

PCPBench /VGAMODE: 32.1

PCPBench 101: not SuperVGA

VSPEED banked 101: not SuperVGA

DOOM:5925

TSENG ET3000AX

FCC-ID:

512 kB RAM

BIOS message -

BIOS version: V8.01

BIOS Date 08/10/90

24 kB

DAC: 50 MHz 8 bit

VESA -

100 ns DRAM

3DBench2: 25.6

PCPBench /VGAMODE: 21.7

PCPBench 101: 4.7 (UNIVBE 5.1)

VSPEED banked 101: 1.54 MByte/s (UNIVBE 5.1)

DOOM:8827

TSENG ET4000AX (TC6058AF)

FCC-ID:

1024 kB RAM

BIOS message -

BIOS version: V8.00

BIOS Date 12/21/90

32 kB

DAC: 66 MHz MUSIC 8 bit

VESA -

80 ns DRAM

3DBench2: 55.9

PCPBench /VGAMODE: 45.9

PCPBench 101: 10.5 (UNIVBE 5.1)

VSPEED banked 101: 3.69 MByte/s (UNIVBE 5.1)

DOOM:3373

Headland HT208 (also known as Video7 1024i) HP OEM

FCC-ID: D2AFW2

512 kB RAM

BIOS message -

BIOS version: 7.04

BIOS Date 01/11/90

24 kB

DAC: 50 MHz MUSIC 8 bit

VESA -

80+80+80+100 ns DRAM

3DBench2: 35.6

PCPBench /VGAMODE: 25.3

PCPBench 101: 5.4 (UNIVBE 5.1)

VSPEED banked 101: 1.84 MByte/s (UNIVBE 5.1)

DOOM:3788

Headland HT208 (also known as Video7 1024i) Compaq OEM

FCC-ID: D2AFW2

512 kB RAM

BIOS message color cycling

BIOS version: 7.00

BIOS Date 07/09/90

32 kB

DAC: 50 MHz Ti 8 bit

VESA -

100+100+80+70 ns DRAM

3DBench2: 35.6

PCPBench /VGAMODE: 25.3

PCPBench 101: 5.4 (UNIVBE 5.1)

VSPEED banked 101: 1.84 MByte/s (UNIVBE 5.1)

DOOM:3788

WDC Paradise PVGA1A

FCC-ID: DBM5UEVGAPROF

256 kB RAM

BIOS message

BIOS version: 003056-007

BIOS Date 07/14/88

24 kB

DAC: 50 MHz Bt 8 bit

VESA -

80 ns DRAM

3DBench2: 39.6

PCPBench /VGAMODE: 32.1

PCPBench 101: no SuperVGA

VSPEED banked 101: no SuperVGA

DOOM:5924

Avance Logic Inc. ALG2101

FCC-ID: JQDA2101050103C

1024 kB RAM

BIOS message

BIOS version V.2.03.A

BIOS Date Quadtel 10/13/90 and ALI 09/28/92

32 kB

DAC: ALG1101 16 bit

VESA 1.0

70 ns DRAM

3DBench2: 45.2

PCPBench /VGAMODE: 36.4

PCPBench 101: 8.3 (UNIVBE 5.1)

VSPEED banked 101: 2.95 MByte/s (UNIVBE 5.1)

DOOM:5809

TSENG ET4000AX (TC6100AF)

FCC-ID:

512 kB RAM

BIOS message

BIOS version

BIOS Date

?? kB

DAC: MUSIC 9C1710 80 MHz 8 bit

VESA -

70 ns DRAM → removed 512 kB for GUS

3DBench2: ??

PCPBench /VGAMODE: ??

PCPBench 101: ??

VSPEED banked 101: ??

DOOM:??

TSENG ET4000AX (TC6100AF)

FCC-ID:

1024 kB RAM

BIOS message

BIOS version V8.02

BIOS Date 09/30/93

32 kB

DAC: ICS5301-2 110 MHz TrueColor

VESA -

80 ns DRAM

3DBench2: 55.9

PCPBench /VGAMODE: 46.1

PCPBench 101: 10.5 (UNIVBE 5.1)

VSPEED banked 101: 3.69 MByte/s (UNIVBE 5.1)

DOOM:3364

WDC WD90C00

FCC-ID: DBM603316
512 kB RAM
BIOS message
BIOS version 003145-110
BIOS Date 05/21/90
24 kB
DAC: ADV476KN50 50 MHz 8 bit
VESA -
100 ns DRAM

3DBench2: 35.4
PCPBench /VGAMODE: 28.1
PCPBench 101: 5.3 (UNIVBE 5.1)
VSPEED banked 101: 1.84 MByte/s (UNIVBE 5.1)
DOOM:6178

SPEA V7-VEGA CL-GD5428

FCC-ID: EMA004000701
1024 kB RAM
BIOS message
BIOS version 1.30 / V7-VEGA 4.00I
BIOS Date 07/08/93
32 kB
DAC: integrated CL24
VESA 1.2
70 ns DRAM

3DBench2: 55.9
PCPBench /VGAMODE: 46.1
PCPBench 101: 10.5
VSPEED banked 101: 3.69 MByte/s
DOOM:3313

TSENG ET4000AX (TC6100AF) Machspeed 32

FCC-ID: HRGVGA9212

1024 kB RAM

BIOS message

BIOS version V8.00

BIOS Date 01/07/93

32 kB

DAC: Winbond W82C490-80 80 MHz

VESA -

70 ns DRAM

3DBench2: 67.7

PCPBench /VGAMODE: 56.6

PCPBench 101: 13.1 (UNIVBE 6.7)

VSPEED banked 101: 4.79 MByte/s (UNIVBE 6.7)

DOOM:2795

Oaktech OTI037C (Suntra)

FCC-ID:

256 kB RAM

BIOS message color cycling

BIOS version ECv2.13-35

BIOS Date Wed Jan 08:42:10 1990

32 kB

DAC: sticker on top

VESA -

80 ns DRAM

3DBench2: 14.8

PCPBench /VGAMODE: 11.1

PCPBench 101: no SuperVGA

VSPEED banked 101: no SuperVGA

DOOM:7841

Trident TVGA 8900D

FCC-ID: HNG890CL-BBD1TIA1

1024 kB RAM

BIOS message

BIOS version C4.4

BIOS Date 12/13/93

32 kB

DAC: Trident TKD8001 24 bit 80 MHz

VESA 1.2

70 ns DRAM

3DBench2: 55.9

PCPBench /VGAMODE: 45.9

PCPBench 101: 10.5

VSPEED banked 101: 3.69 MByte/s

DOOM:3372

VIDEO SEVEN VEGA VGA (CL GD520 / GD510)(Compaq)

FCC-ID: D2A62L1989V5

256 kB RAM

BIOS message

BIOS version 1.78

BIOS Date 05/09/89

32 kB

DAC: AMD Am81C176-50PC 50 MHz 8 bit

VESA -

100 ns DRAM

3DBench2: 14.5

PCPBench /VGAMODE: 10.8

PCPBench 101: no SuperVGA

VSPEED banked 101: no SuperVGA

DOOM:7911

Trident TVGA 9000i (Surf)

FCC-ID:

512 kB RAM

BIOS message

BIOS version D4.01E

BIOS Date 10/18/93

32 kB

DAC: internal 80 MHz

VESA 1.2

70 ns DRAM

3DBench2: 20.8

PCPBench /VGAMODE: 16.3

PCPBench 101: 3.3

VSPEED banked 101: 1.11 MByte/s

DOOM:5941

Athlon Thunderbird 1400C, Abit KT7A

ATI Graphics ULTRA / VGA Wonder 28800-6

FCC-ID: EXMCOMBOVM1

512 kB RAM (VGA)

BIOS message

BIOS version 113-11504-002

BIOS Date 04/08/92

32 kB

DAC: 80 MHz HiColor

VESA -

80 ns DRAM

3DBench2: 47.3

PCPBench /VGAMODE: 45.6

PCPBench 101: 10.0 (VVESA.COM)

VSPEED banked 101: 3.32 MByte/s (VVESA.COM)

DOOM:4499

Number Nine GXiTC / Acumos AVGA2

FCC-ID:

512 kB RAM (VGA)

BIOS message Acumos AVGA2 Desktop VGA BIOS

BIOS version 340-007-11-Rev1.00

BIOS Date 04/07/92

32 kB

DAC: 135 MHz

VESA 1.1

70 ns DRAM

3DBench2: 55.9

PCPBench /VGAMODE: 45.9

PCPBench 101: 8.6

VSPEED banked 101: 2.95 MByte/s

DOOM:3321

TSENG ET4000AX (TC6100AF)

FCC-ID: ILLTS4HV

1024 kB RAM

BIOS message

BIOS version 8.02

BIOS Date 08/17/92

32 kB

DAC: 80 MHz TrueColor

VESA -

70 ns DRAM

3DBench2: 67.7

PCPBench /VGAMODE: 56.6

PCPBench 101: 13.1 (UNIVBE 6.7)

VSPEED banked 101: 4.79 MByte/s (UNIVBE 6.7)

DOOM:2795

Athlon Thunderbird 1400C, Abit KT7A
ATI VGAWonderXL / VGA Wonder 28800-5

FCC-ID: EXMVGAXLV1
1024 kB RAM
BIOS message
BIOS version 11201122030
BIOS Date 09/24/91
32 kB
DAC: 80 MHz HiColor
VESA -
256kB 80 ns DRAM, 768 kB 70 ns DRAM socketed

3DBench2: 46.6
PCPBench /VGAMODE: 45.0
PCPBench 101: 10.1 (VVESA.COM)
VSPEED banked 101: 3.32 MByte/s (VVESA.COM)
DOOM:4511

TSENG ET4000AX (TC6100AF) Machspeed 32

FCC-ID: HRGVGA9212
1024 kB RAM
BIOS message
BIOS version 8.00
BIOS Date 01/20/94
32 kB
DAC: ICS5301-1 80 MHz TrueColor
VESA 1.32
70 ns DRAM

3DBench2: 55.9
PCPBench /VGAMODE: 45.9
PCPBench 101: 10.5 (UNIVBE 6.7)
VSPEED banked 101: 3.69 MByte/s (UNIVBE 6.7)
DOOM:3367