

SiS Newest AMD K7 Solution

~ With FSB400 and DDR400 ~



Silicon Integrated Systems Corp.
Integrated Product Division
Technical Marketing Dept.
Mar. 2003

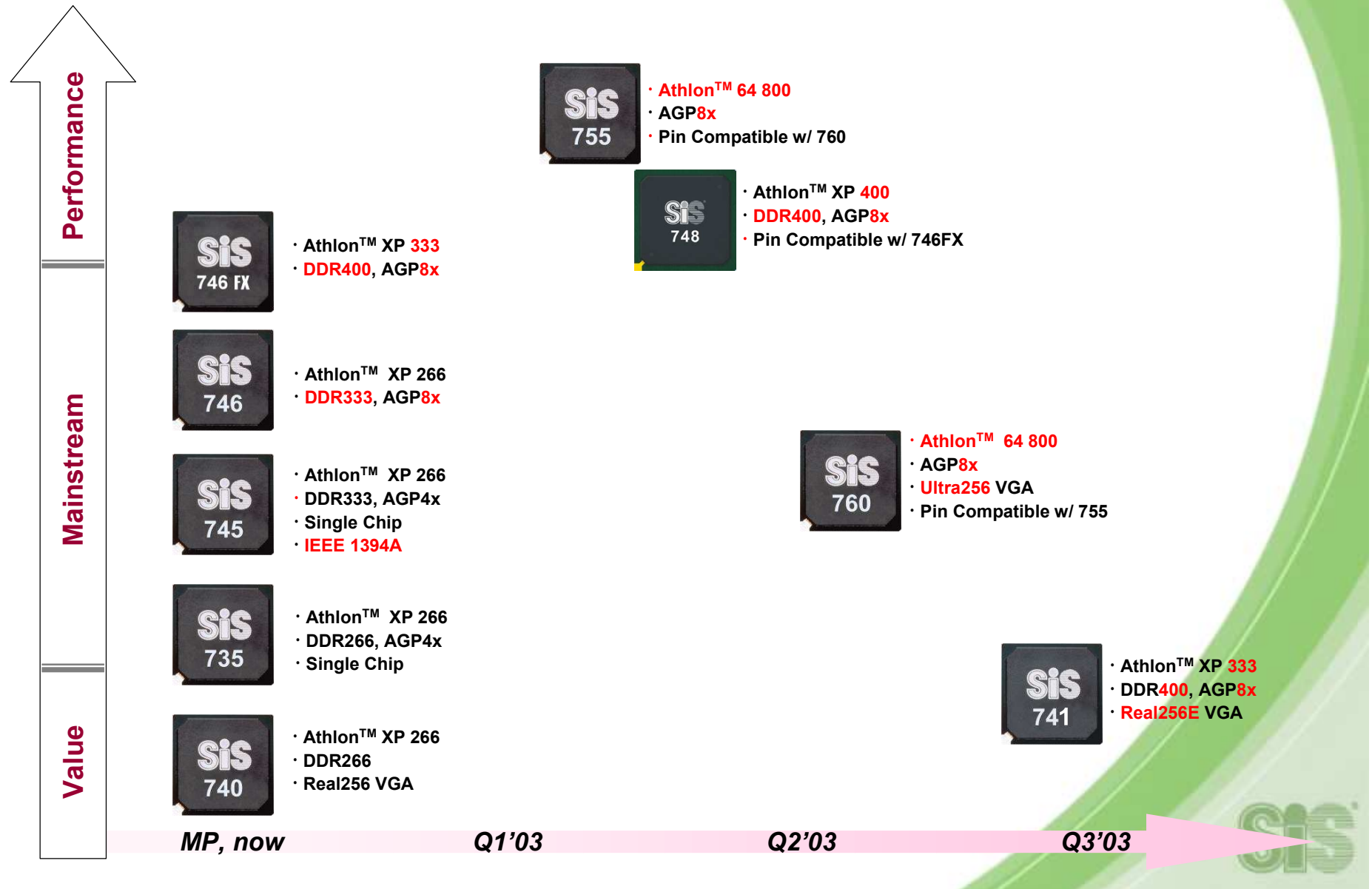


Agenda

- ❑ **SiS K7 Product Positioning**
- ❑ **System Summary**
- ❑ **Leading Technology**
- ❑ **Performance Comparison**
- ❑ **Product Status and Driver Support**

AMD Products Positioning

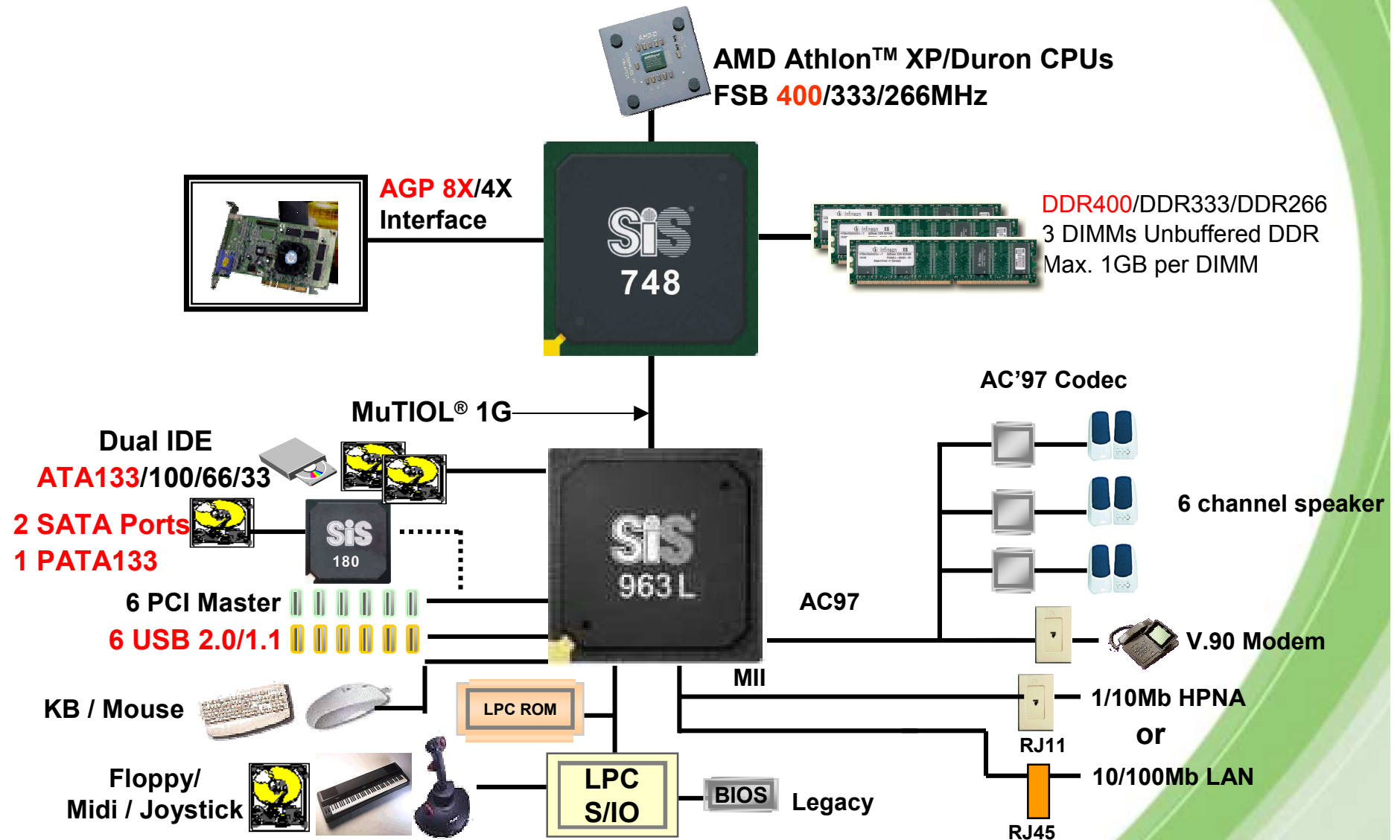
Full Product Lines for Value PC, Mainstream PC, and Performance PC!!



System Summary

- **System Architecture**
- **North Bridge Summary**
- **South Bridge Summary**

SiS748/963L System Diagram

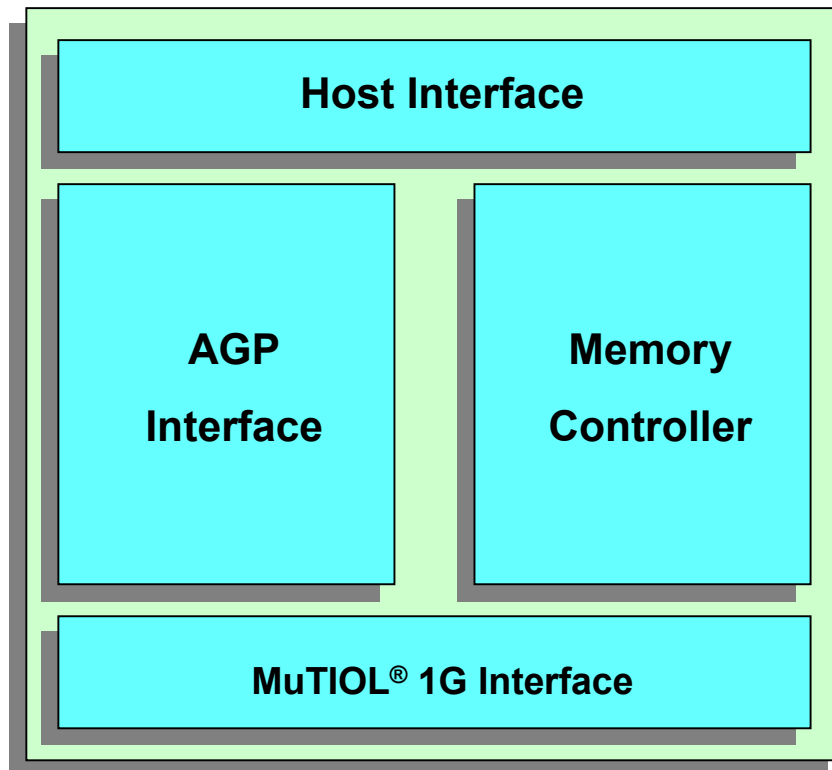
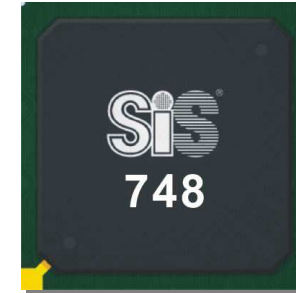


-- PC2001 Compliant --



SiS748 North Bridge Summary

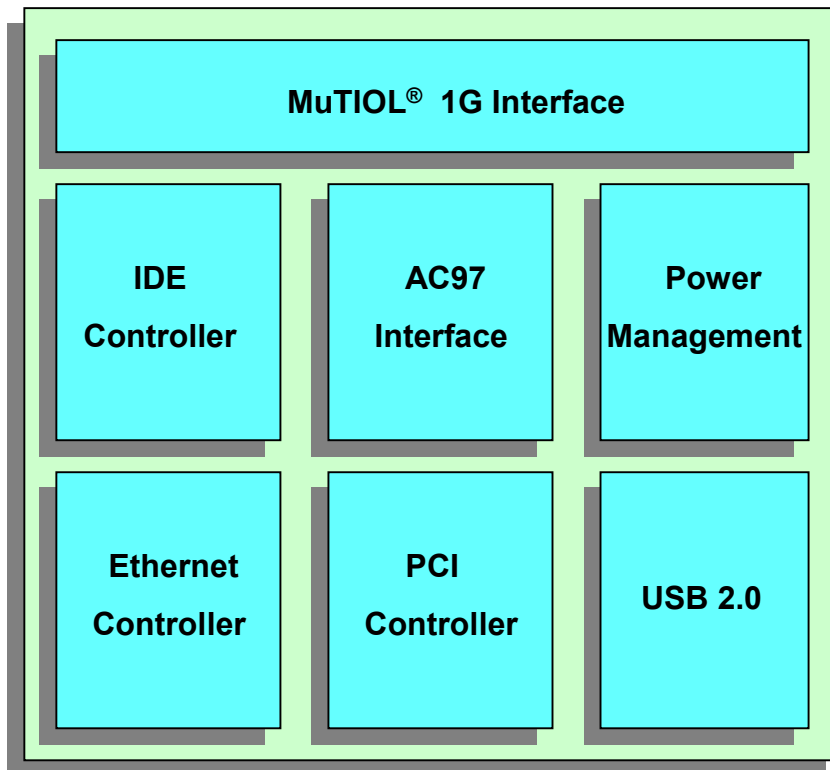
SiS748 North Bridge Architecture



- **400MHz** Front Side Bus
- Support **DDR400/333/266** DDR SDRAM
- Support AGP 8X/4X interface
- **MuTIOL® 1G Interface**
 - 1GB/s Bandwidth
 - Bi-Directional 16-bit Data Bus

SiS963L South Bridge Summary

SiS963L South Bridge Architecture

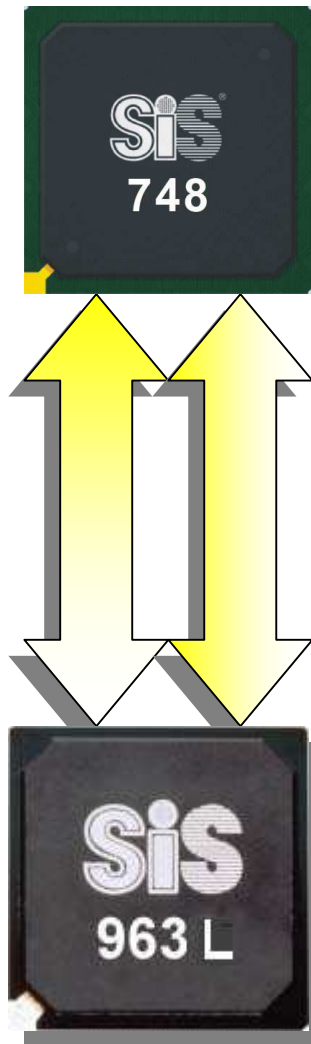


- Support ATA133/100/66/33
- USB2.0 for up to 6 ports
- 6 channels of AC97 speaker outputs
- Support V.90 HSP Modem
- ACPI 1.0b Compliance
- MuTIOL® 1G Interface
 - 1GB/s Bandwidth
 - Bi-Directional 16-bit Data Bus

Leading Technology

- MuTIOL[®] 1G Technology
- HyperStreaming Architecture
 - SerialATA-SiS180

MuTIOL[®] Technology



MuTIOL[®] 1G Delivering 1GB/s Bandwidth

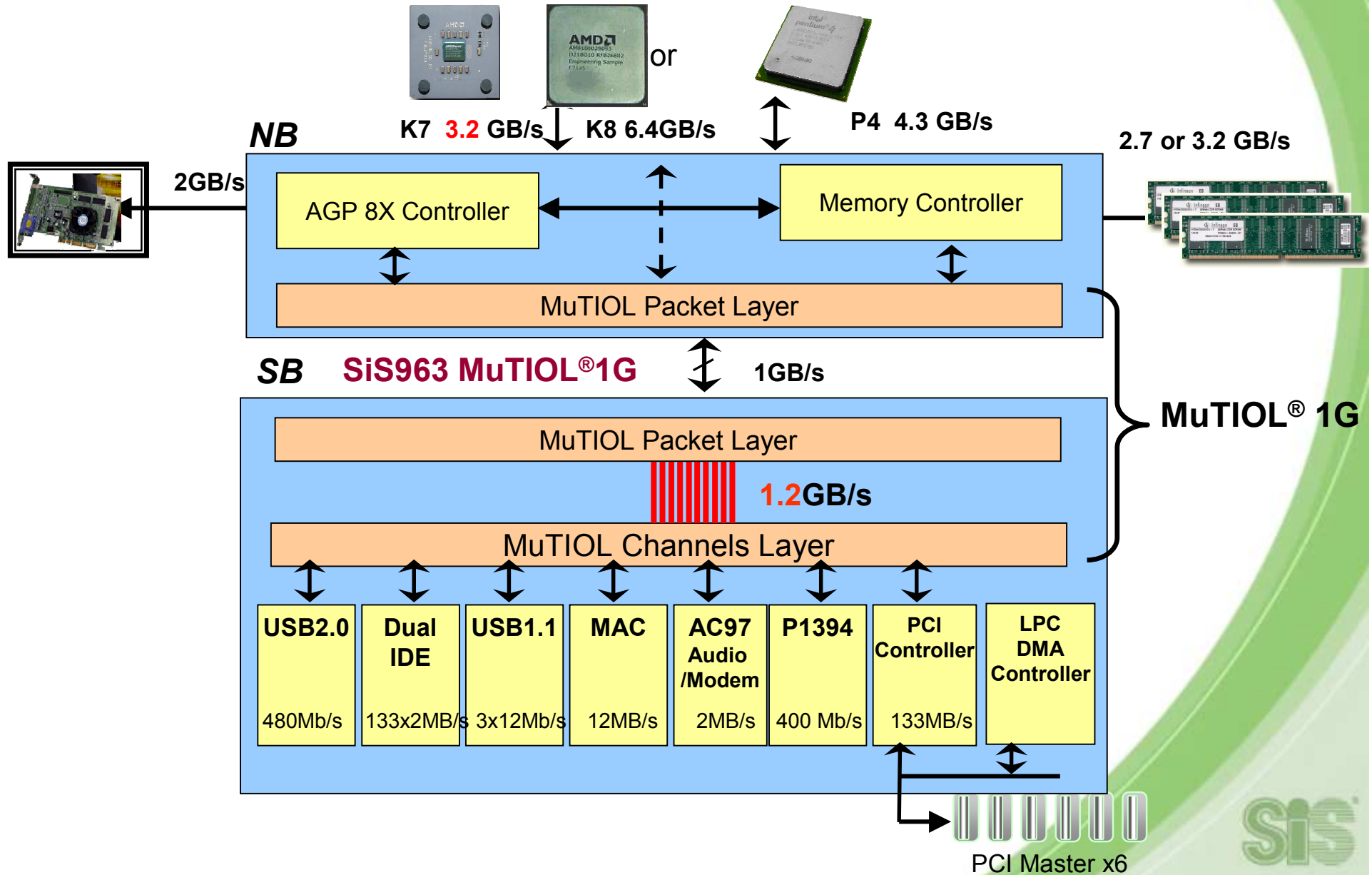
Bi-Directional 16-bit Data Bus at 533MHz Operating Frequency

MuTIOL [®] Media I/O Family – Comparison Chart					
South Bridge	961	961B	962	963	963L
MuTIOL [®]	533MB/s	533MB/s	533MB/s	1GB/s	1GB/s
ATA 133		○	○	○	○
USB 2.0			○	○	○
1394a			○	○	



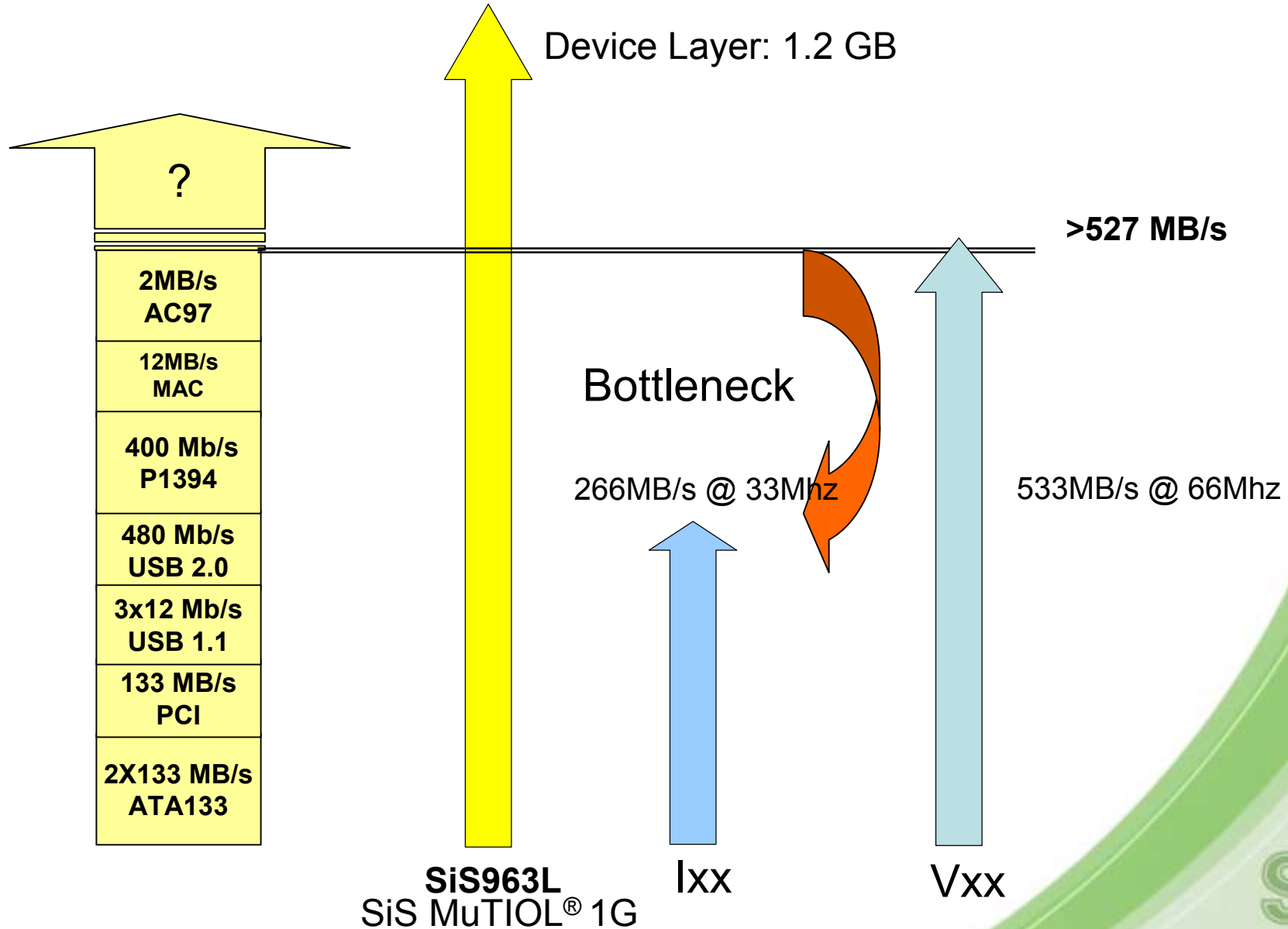
MuTIOL® 1G Technology

--Sufficient Bandwidth for All DMA Master Devices Concurrent Accessing



MuTIOL[®] 1G Technology Advantage

--Sufficient Bandwidth for connecting Northbridge and Southbridge



What is HyperStreaming Technology ?

- **“HyperStreaming”** is SiS Proprietary technology
 - Make streams of data flow all over the paths
 - ✓ Efficiently
 - ✓ Concurrently
 - ✓ Smoothly
 - ✓ Intelligently
- **Optimized system for**
 - **“Low Latency”** with **Single** stream
 - **“Pipelining”** and **“Concurrent Execution”** with **Multiple streams**
 - **“Prioritized Channel”** with **Specific** stream
 - **“Smart flow control”** and **“Intelligent arbitration”** with **Smart** stream
- **Satisfying End Users Desire**

Best Architecture-- SiS HyperStreaming

- **Parallel architecture in full path**
 - North-Bridge
 - Link between North-Bridge and South-Bridge
 - Device controllers
 - Host Interface
 - Memory Interface
- **Lower system latency**
- **Parallel and cost effective channels**
- **Isochronous channel for higher priority data**
- **Intelligent interface control for efficiency**

Detail information please refer to www.sis.com



SerialATA – SiS180

- Single Chip**
- For Powerful IDE Devices Configuration**

SiS180 + SiS963L IDE Configuration

- **Compatibility Mode**

- IRQ14 for primary channel and IRQ15 for secondary channel
- Maximum 4 IDE devices
- Fix I/O port and IRQ
- Resource Conflict @ over 4 IDE devices connected

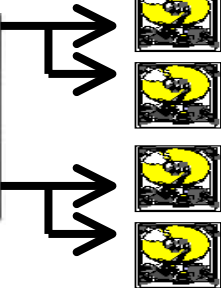
- **Native Mode**

- Native mode support in new OS only (WindowsXP, Windows.Net Server)
- I/O port and IRQ assigned by BIOS or OS
- No limitation of “Maximum 4 IDE devices Support”

SiS180 + SiS963L IDE Configuration -cont.

Compatibility Mode

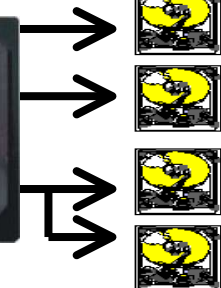
Device ID:5513



With Win98/WinMe Default IDE driver installed

Option 1: Disable 2 PATA Controller in 963L
and use 2S1P in 180 (Max. 4 devices)

Device ID:0180

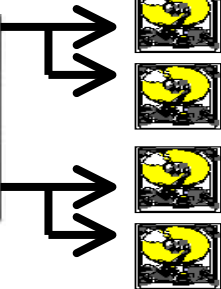


Option 2: Disable 2S1P controller in 180 and
use 2 PATA controller in 963L (Max. 4 devices)

SiS180 + SiS963L IDE Configuration -cont.

Native Mode

Device ID:5513



Device ID:0180



- **With Native mode support OS**

Both 2 PATA controllers in 963L and 2S1P controllers in 180 can be enabled

- **Native mode support OS is WindowsXP and Windows.Net Server**

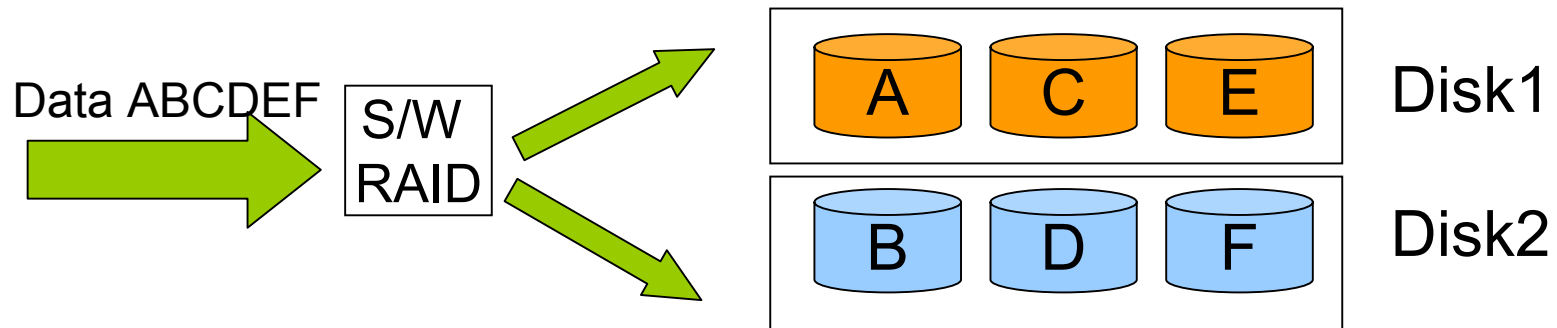
- **Maximum Support 8 IDE devices**

SiS180 Software RAID Support

- **RAID0, RAID1, RAID0+1, and JBOD**
- **GUI Utility to create RAID, delete RAID, show RAID configuration.**
- **Support OS: WindowsXP and Windows2000**

SiS180 Software RAID Support

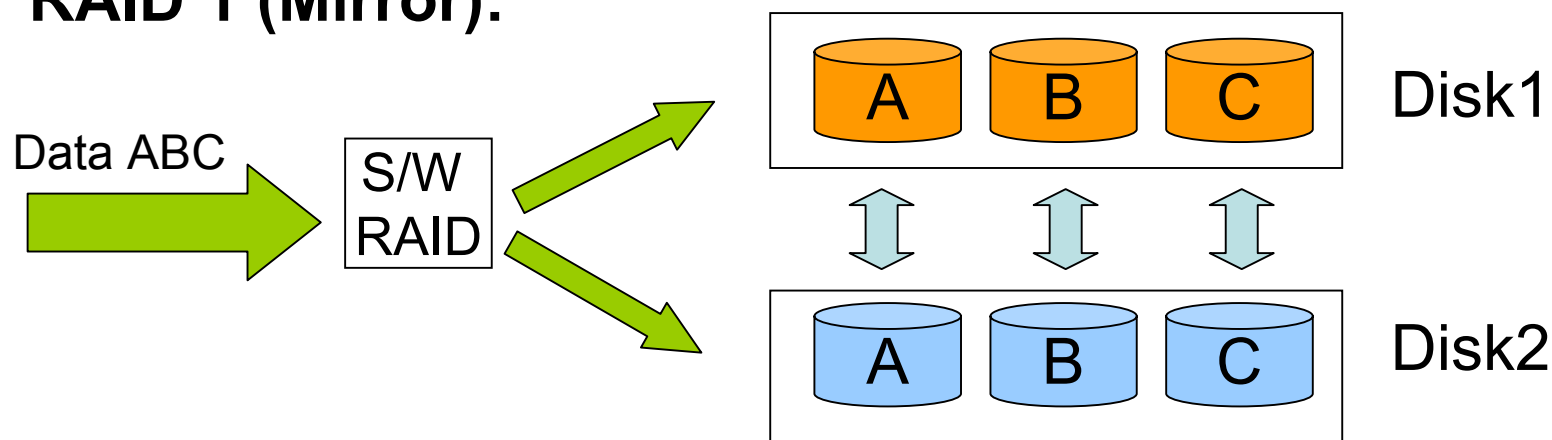
RAID 0 (Striping):



- RAID 0 implements a striped disk array, the data is divided into small blocks and each block is written to a separate disk drive.
- I/O performance is improved by separate the I/O access via different channels and drives.
- Requires a minimum of 2 drives to implement

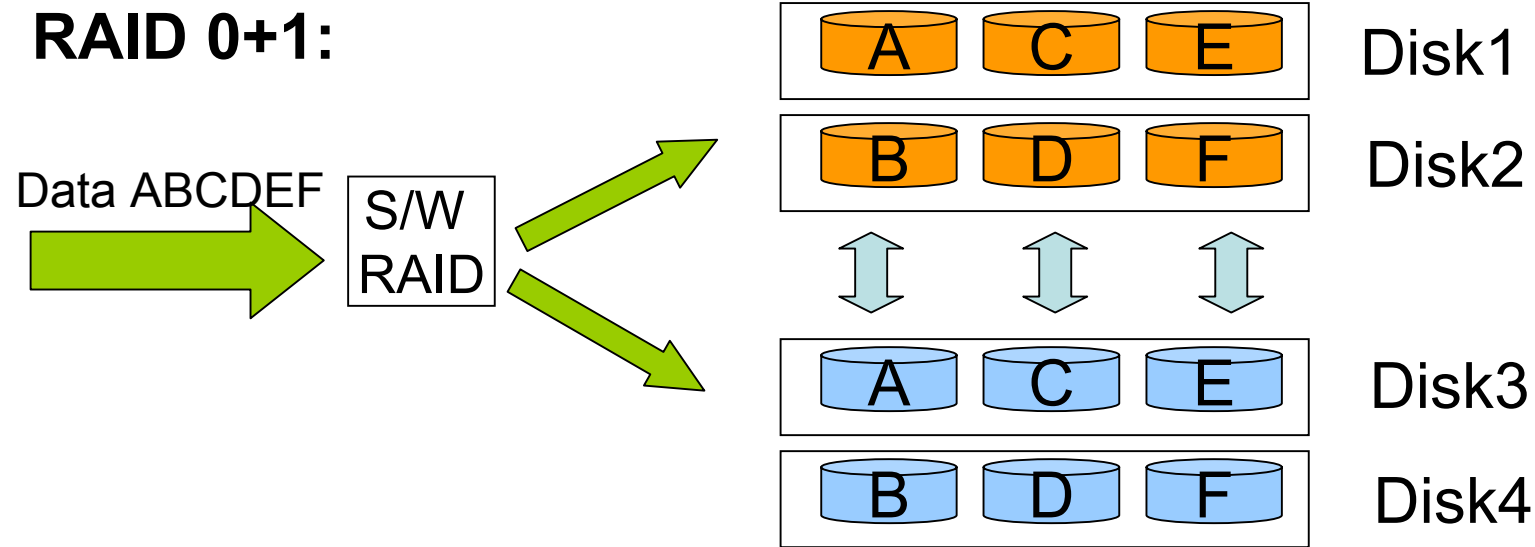
SiS180 Software RAID Support

RAID 1 (Mirror):



- RAID 1 implements a mirrored disk array, the data is written to one disk and copied to the replacement disk at the same time.
- Data will be backup in the replacement disk, that means, no rebuild is necessary in case of disk failure. While disk failure, just restore from the replacement disk.
- Requires a minimum of 2 drives to implement

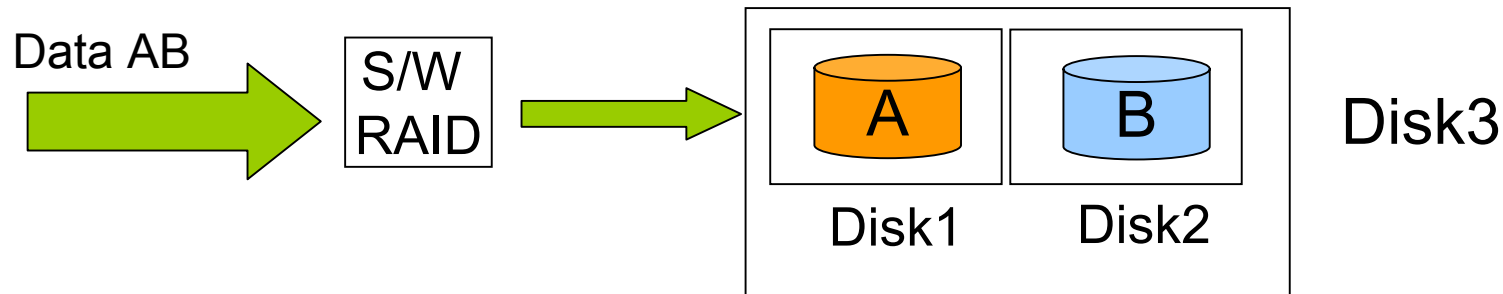
SiS180 Software RAID Support



- RAID 0+1 implements a mirrored disk array, which element is a striped array. The data is written in the format of striping and copied to the replacement disk array at the same time.
- Providing the same level of rebuild capability of RAID1
- Requires a minimum of 4 drives to implement

SiS180 Software RAID Support

JBOD:



- JBOD combines two or more physical Disk to be single virtual Disk.
- Requires a minimum of 2 drives to implement

SiS180 Key Feature List

- **PCI Interface**
 - PCI rev 2.3 Compliant
 - Support 33MHz/32bit PCI interface
- **Serial ATA Interface**
 - Support Serial ATA rev 1.0
 - Support Serial ATA spec. of 150MB/s transfer rate
 - Integrated 2 channel SATA PHY logic with 2 independent Serial ATA ports support
- **Parallel IDE Interface**
 - One IDE Channel with 2 IDE devices support
 - Support PIO mode 0, 1, 2, 3, 4 and Multiword DMA mode 0, 1, 2
 - Support Ultra DMA mode 33/66/100/133
 - ATA/ATAPI 48-bit address compliance for supporting device over 137GB
 - Support Native and compatibility Mode
- **ROM Interface**
 - Support 64K bytes ROM
- **Package**
 - 128-pin PQFP Package

Performance Comparison

- **SiS748 vs. KT400A Feature list**
 - **Performance Comparison**

SiS748 vs. KT400A

SiS748 DDR480 vs. DDR400



SiS748 VS KT400A



~ Feature List ~

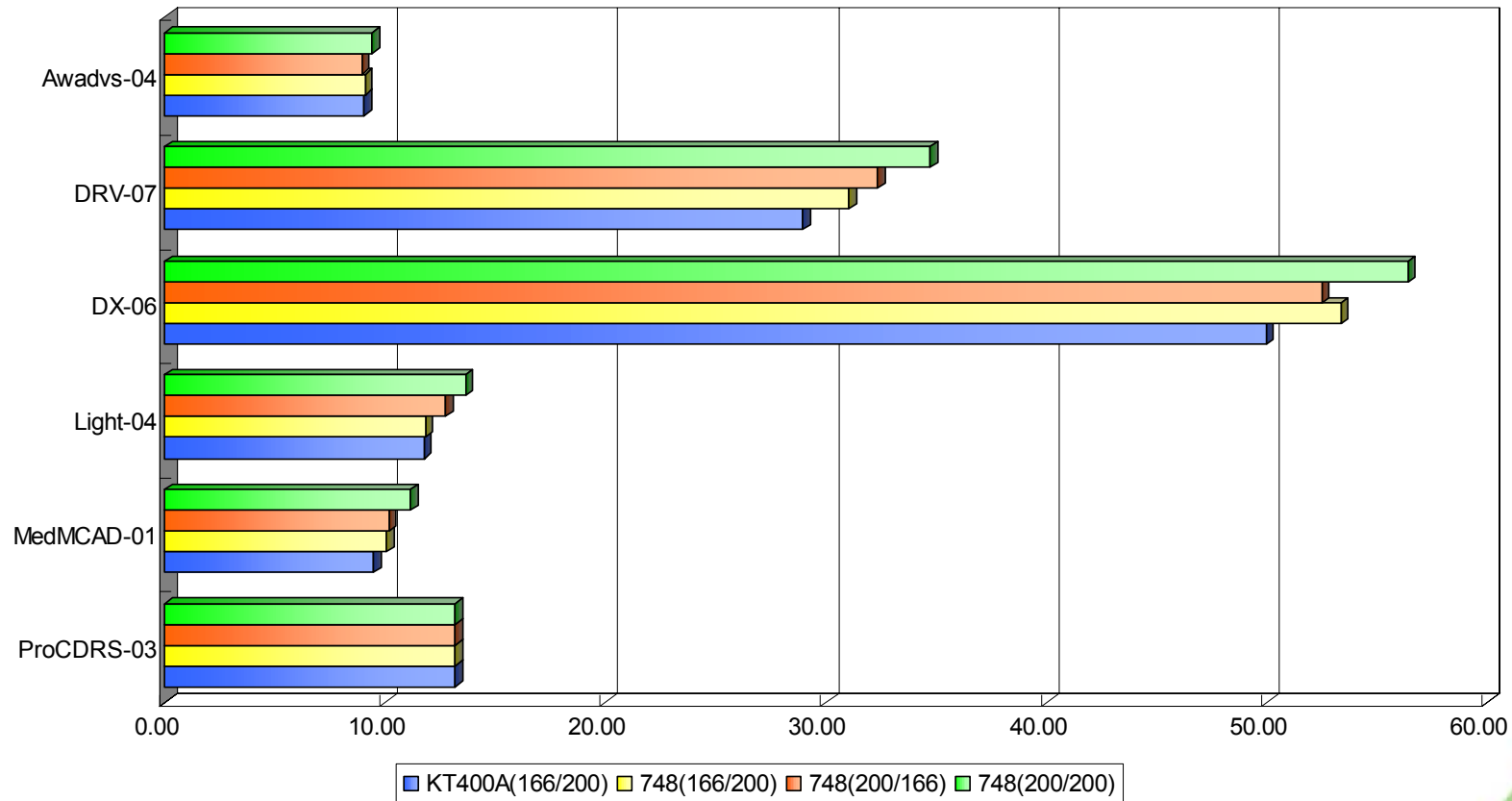


400MHz	Front Side Bus	333MHz
DDR400/333/266	Memory Type	DDR400/333/266
8X	AGP	8X
1GB/s	North/South Bridge Bandwidth	533MB/s
6 PCI	PCI Device/ Slot	6 PCI
ATA 33/66/100/133	IDE	ATA 33/66/100/133
USB 1.1/2.0 6 ports	USB	USB 1.1/2.0 6 ports

SiS748 VS KT400A

3D Performance

~ Specview 7.0 ~



SiS748

CPU: AMD Athlon XP 2200+

DRAM: Kingston DDR400 256MB

VGA Driver: ATi9700 6.13.10.6218

HD: Maxtor Maxtor 40G 7200 ATA133

KT400A

CPU: AMD Athlon XP 2200+

DRAM: Kingston DDR400 256MB

VGA Driver: ATi9700 6.13.10.6218

HD: Maxtor 40G 7200 ATA133



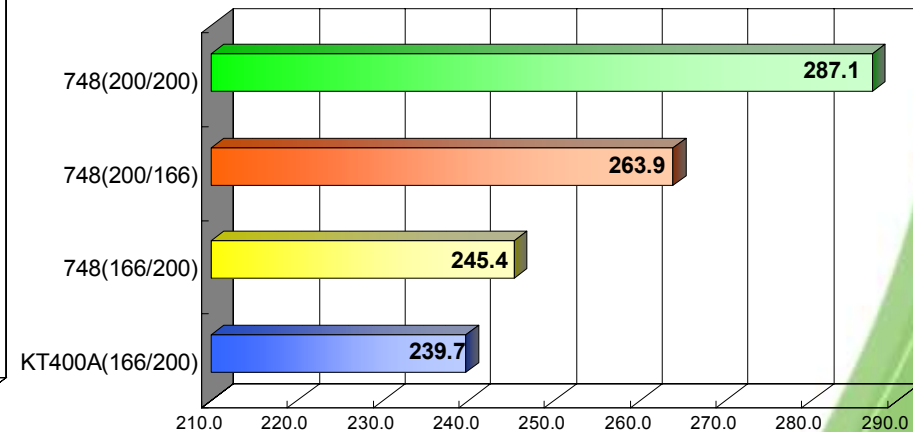
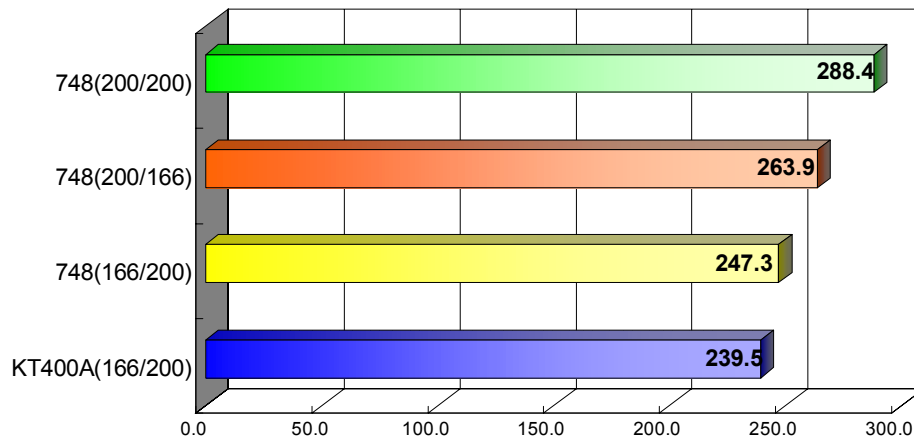
SiS748 VS KT400A

3D Performance

~ Quake 3 ~

640x480x32bit

1024x768x32bit



SiS748

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HD: Maxtor Maxtor 40G 7200 ATA133

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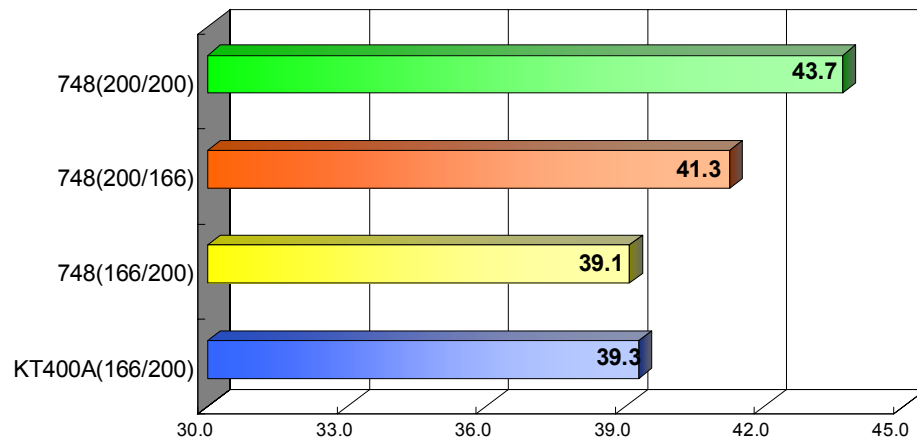


SiS748 VS KT400A

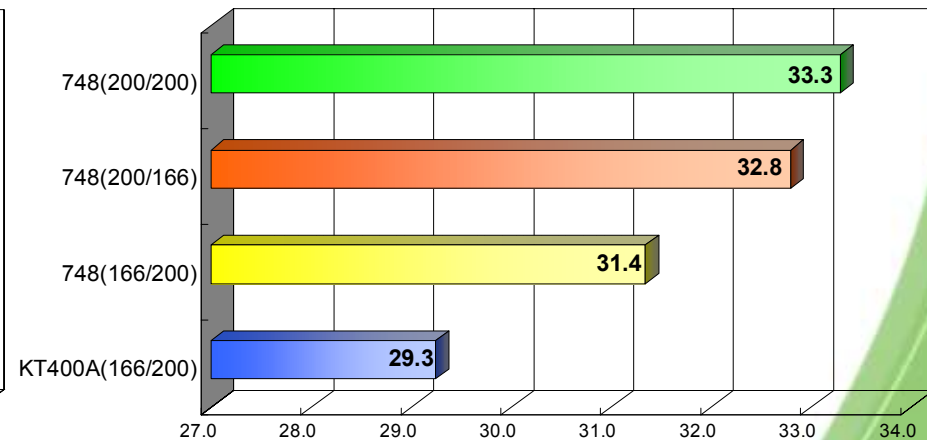
System Performance

~ Winstone ~

Ccws2002



Bcws2002



SiS748

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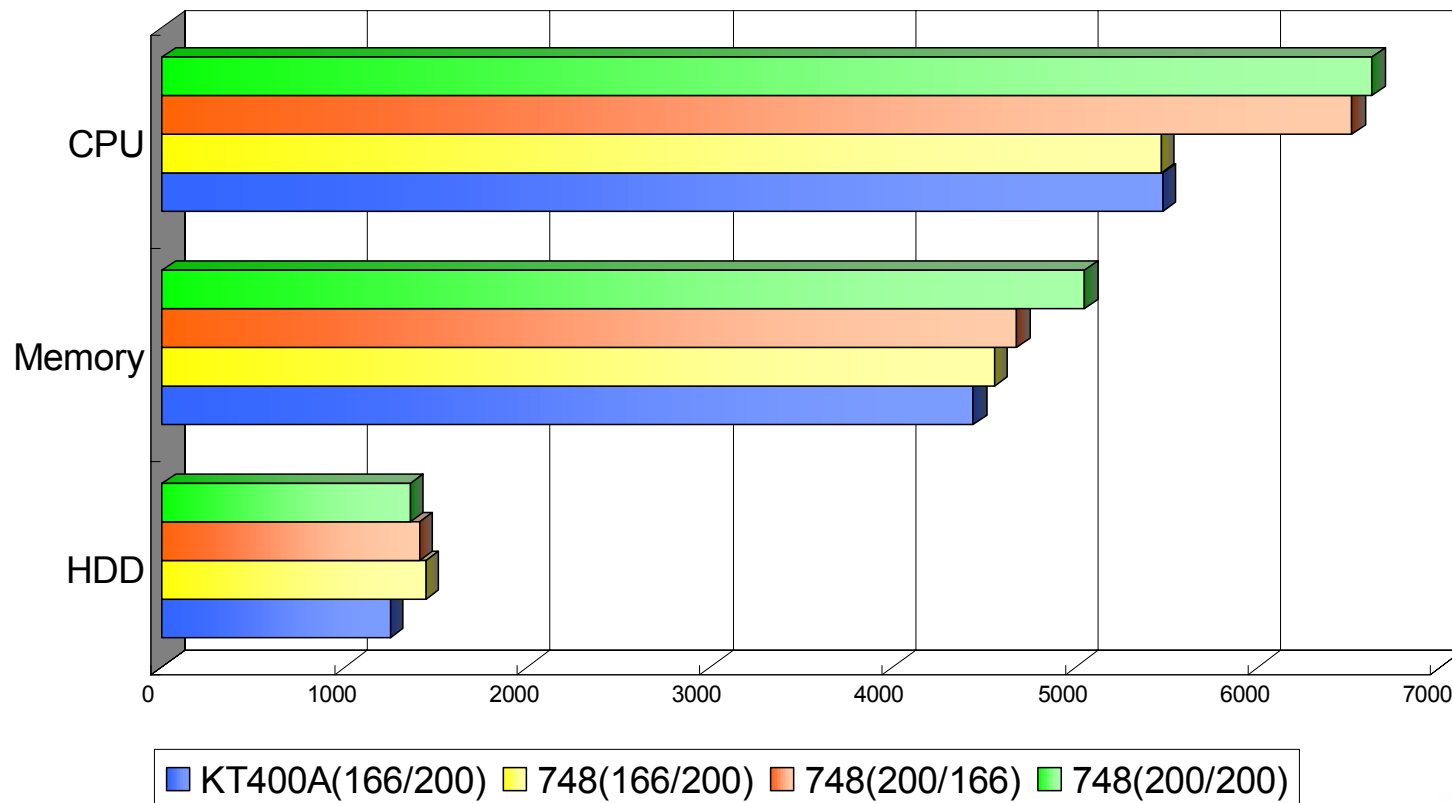
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SiS748 VS KT400A

System Performance

~ PC Mark2002 ~



SiS748

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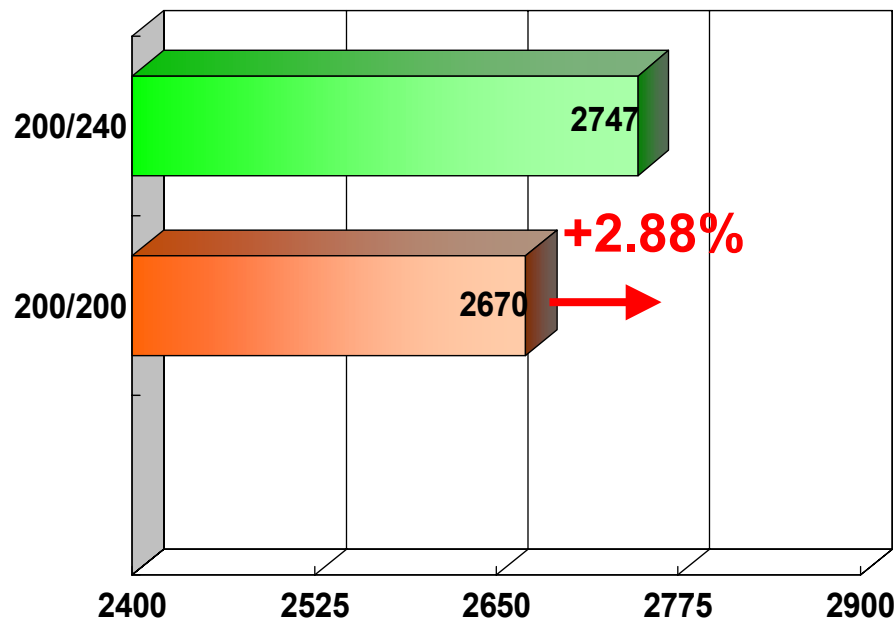
The Miracle of **DDR480** Overclocking

-SiS748

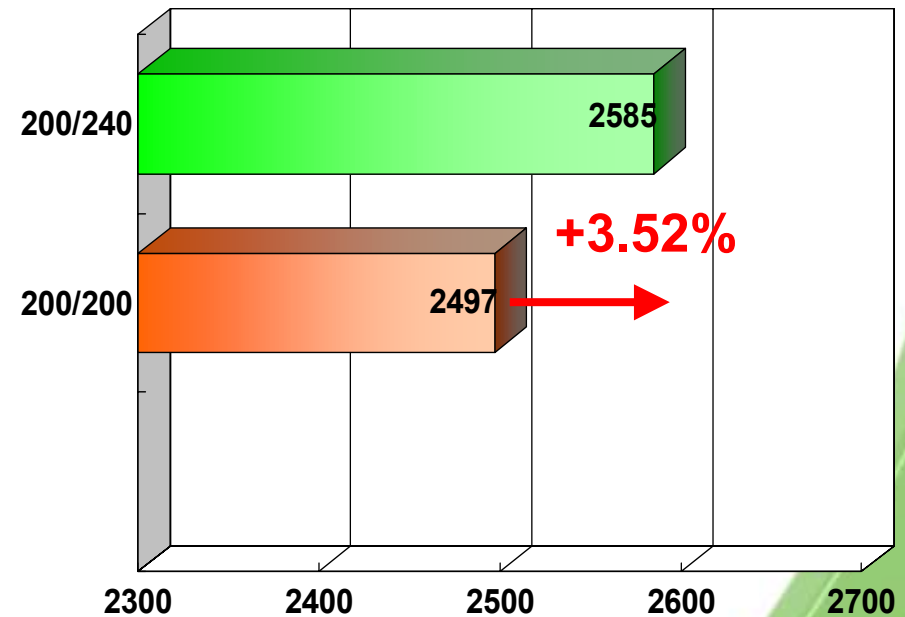
DRAM Performance

~Sandra 2003~

Int ALU/RAM Bandwidth



Float IPU/RAM Bandwidth



SiS748

CPU: AMD Athlon XP 2200+

DRAM: Hynix DDR400 512MB CL3T

VGA Driver: ATi9700 6.13.10.6218

HD: Maxtor Maxtor 40G 7200 ATA133

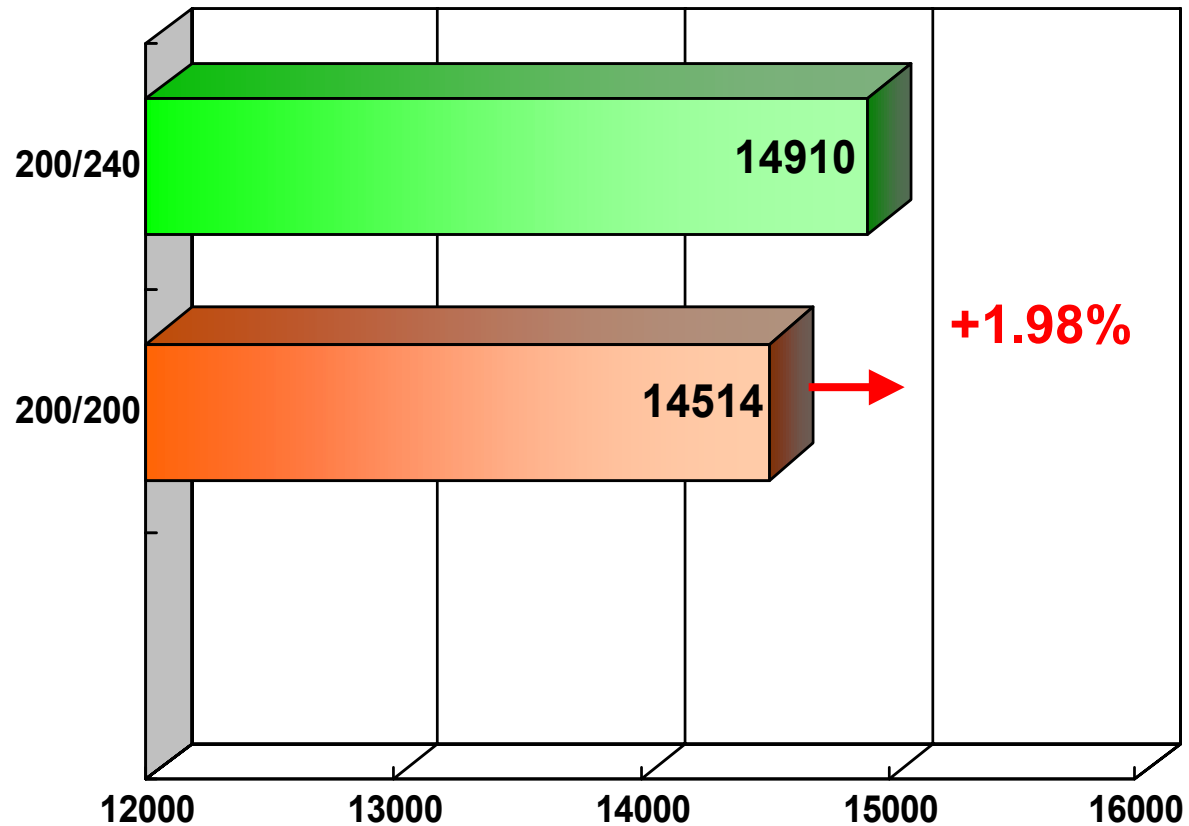


The Miracle of **DDR480** Overclocking

-SiS748

3D Performance

~3DMARK2001SE~



SiS748

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VGA Driver: ATi9700 6.13.10.6218

HD: Maxtor Maxtor 40G 7200 ATA133



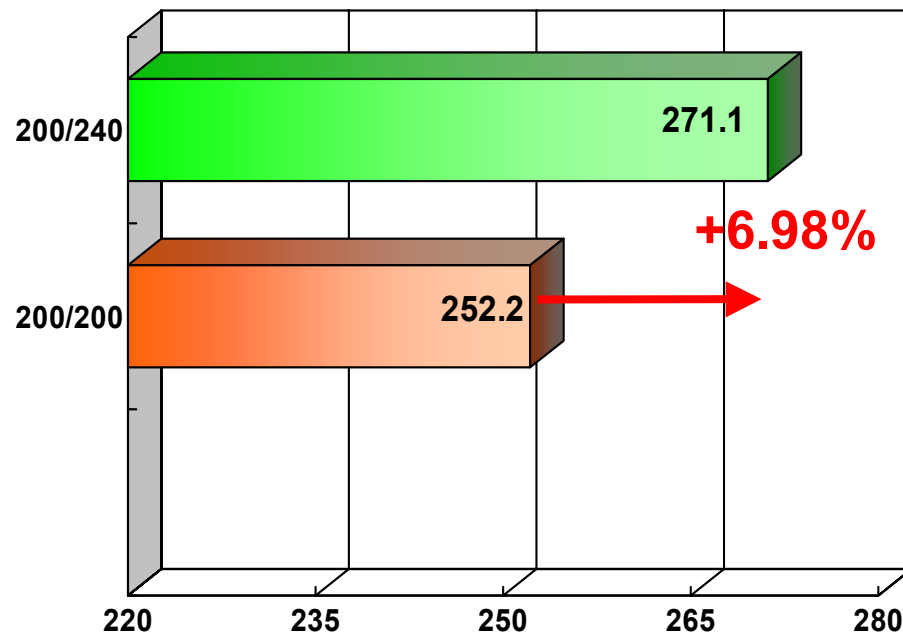
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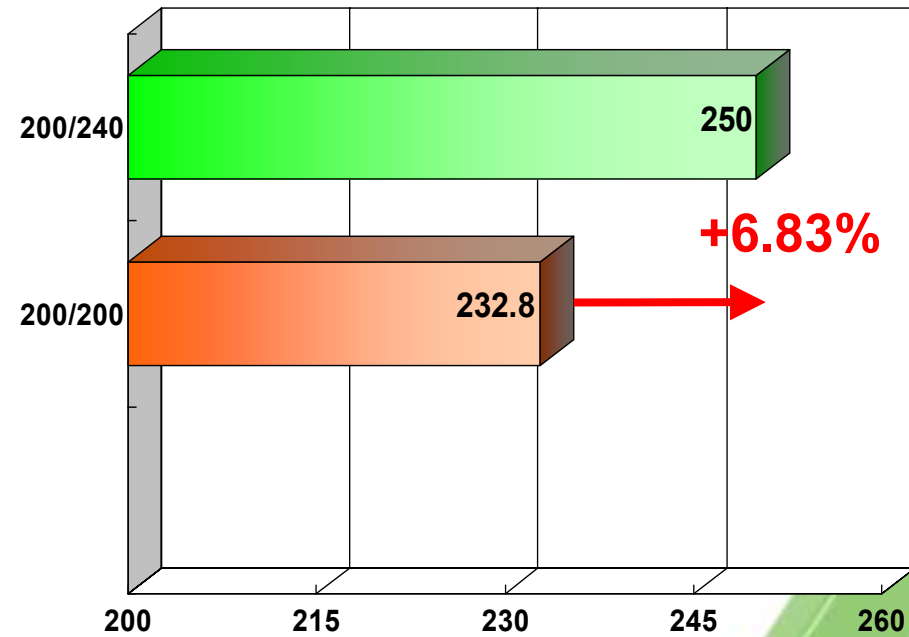
3D Performance

~ Quake 3~

800x600x32bit



1280x1024x32bit



SiS748

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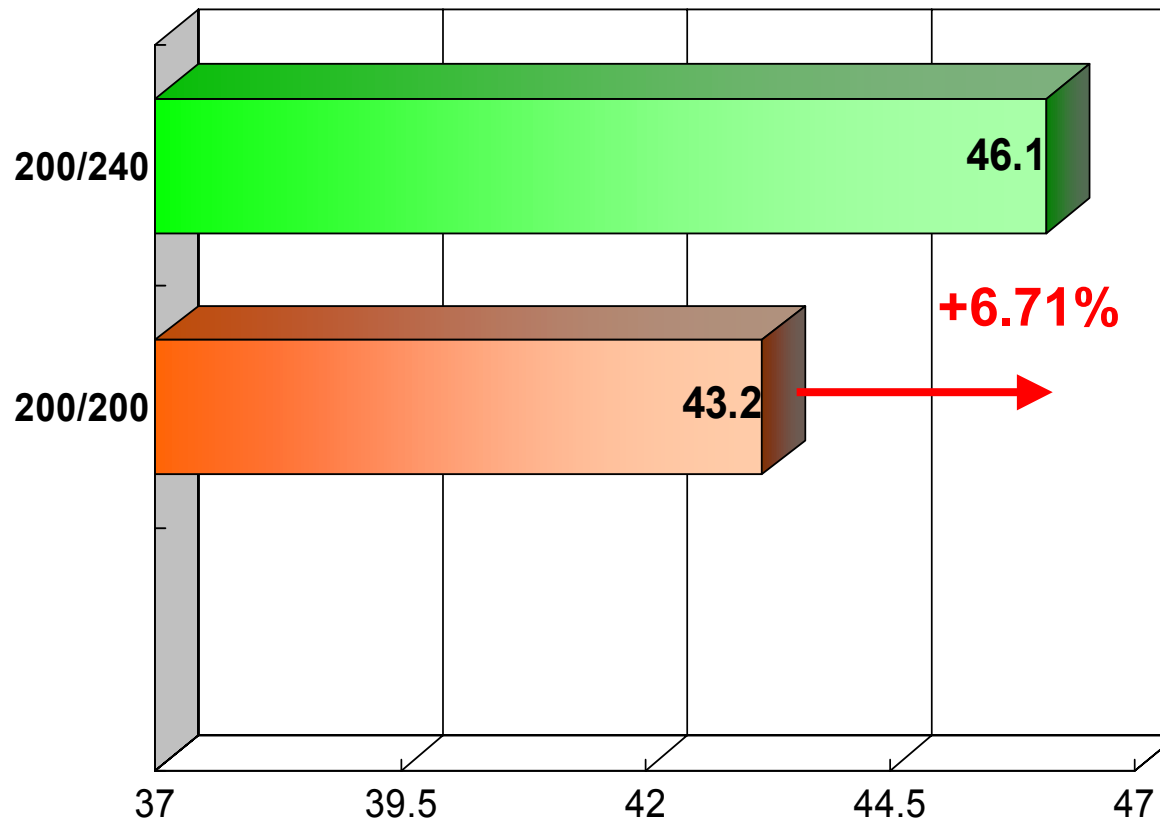
The Miracle of **DDR480** Overclocking

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System Performance

~Winstone~

Ccws2002



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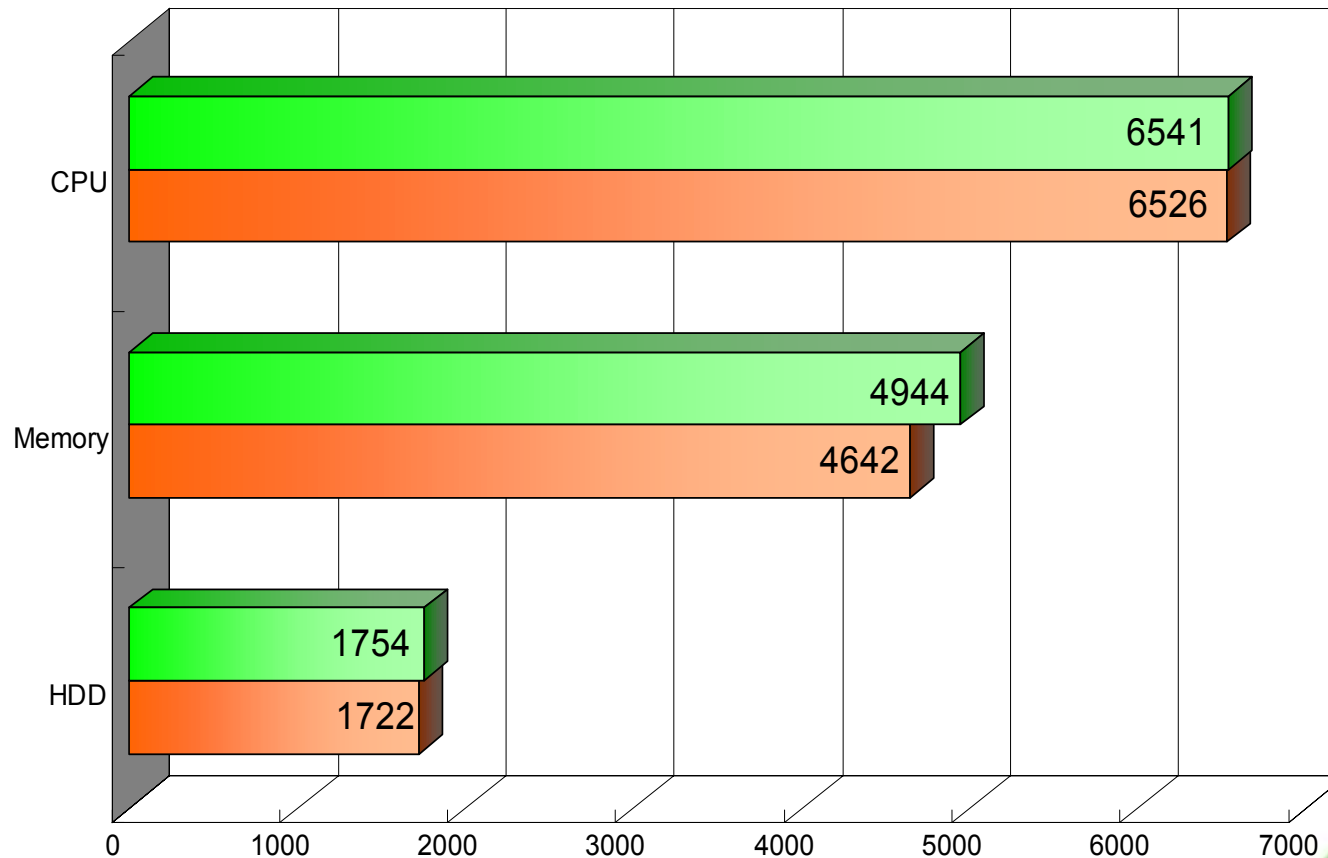


The Miracle of **DDR480** Overclocking

-SiS748

System Performance

~PC Mark2002~



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DRAM: Hynix DDR400 512MB CL3T

VGA Driver: ATi9700 6.13.10.6218

HD: Maxtor Maxtor 40G 7200 ATA133

200/200 200/240



Product Status and Driver Support



Product Status

North Bridge- 748:

Sample : Now

Mass Production : Apr.

South Bridge- 963L:

Sample A0: Now

Mass Production : Now

Software Support

- **SiS Unified VGA Driver**
 - Backward compatible w/650/651/M650/740 family
 - Support Win98SE, WinME, Win2000 and WinXP
- **SiS Unified AGP Driver**
 - Backward compatible w/630/730/635/735/645/650/648 family
- **SiS7012 Unified Audio Driver**
 - Backward compatible w/635/735/961/962 Family
- **SiS Unified LAN/HomePNA Driver**
 - Backward compatible w/630/730/635/735/961/962 family
- **SiS Unified IDE Driver for ATA133**
 - Backward compatible w/961/962 family
- **SiS180 RAID/Utility/IDE Driver**
 - v2.02 logo'd driver released
 - Backward compatible w/ 961/962/963 family



Thank You!

More details products' information, please visit SiS website at www.sis.com

