Introduction

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  - October 22, 2010

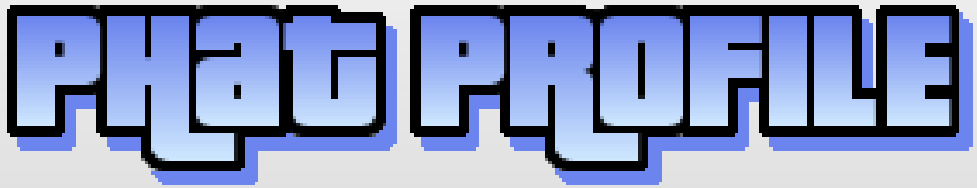
About Me

- Computer Science – Information Systems
- Microsoft Certified Professional
- Windows XP Certified
- A+ Certified

Beginnings

- Wrote my first C program in third grade that generated some basic shapes.
- Started working with VB6 shortly after, creating small utilities.
- Made a few programs for AOL Instant Messenger.
- Starting making basic websites using FrontPage.
- Some Flash Movies and ActionScript
- Created a ”Random Number Generator” for 8th grade science fair that would compare two random number generation algorithms and see how the results compared. Written in VB. Made it to DVSF @ Drexel.
- Started getting more into hardware at this point, but still enjoyed playing with different programming languages.

First ”Large Scale” Project



- PhatProfile
- Started in 2002.
- An enhanced profile system for AIM Messenger using the ”Today Window”.
- First started by having individual user data files which were copied into a folder when the user registered.
- About a year later when I learned some more coding techniques, the site was redesigned in PHP with a MySQL DB Backend.
- At the peak of it's time, we had about 4,500 users. After the redesign was complete and released in beta stage, we had 421 profiles.
- To my dismay, AIM announced that they would be discontinuing the today window and I decided to close down the project.

Demo

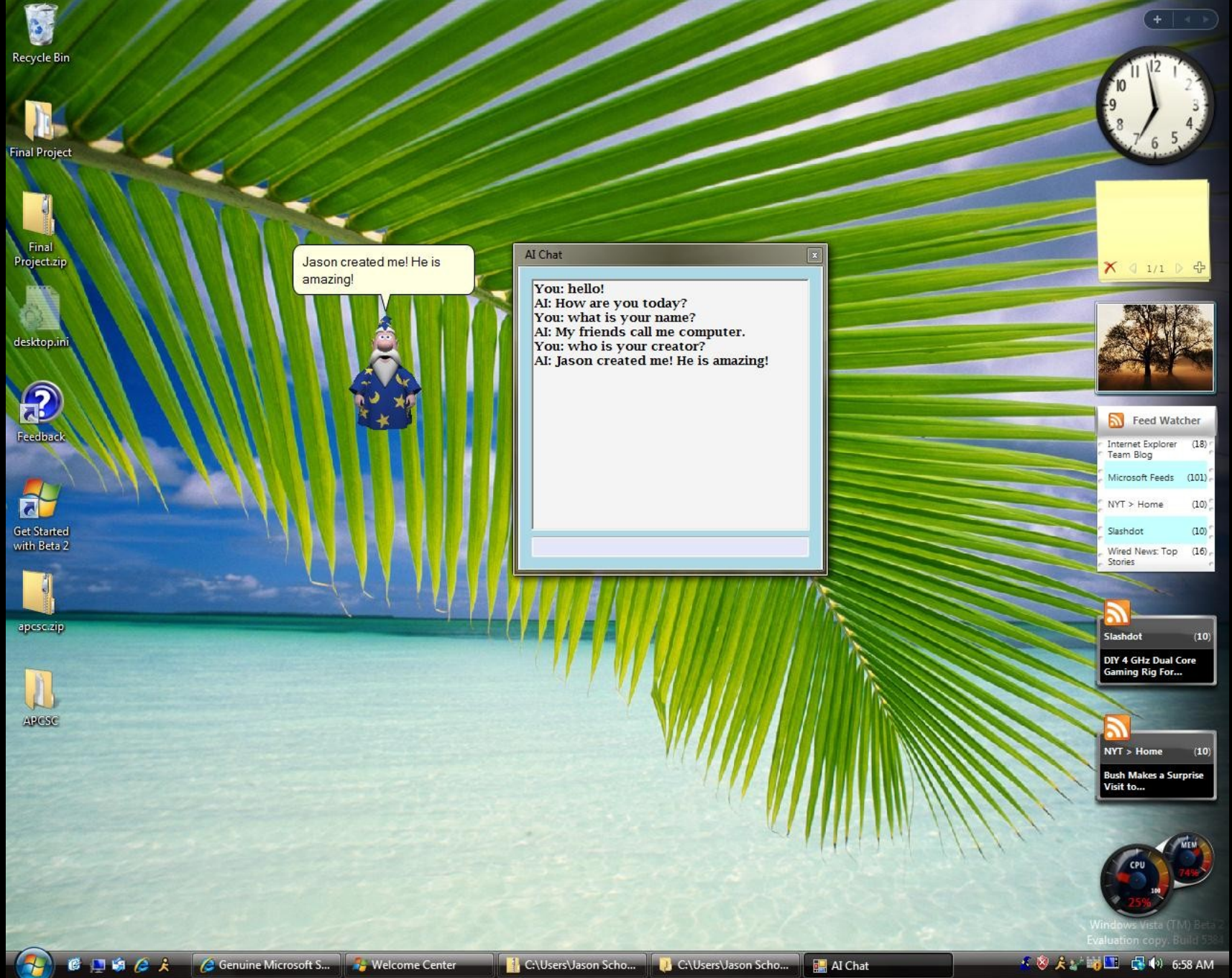
- Phat Profile - http://compywiz.com/~phat/index2.php

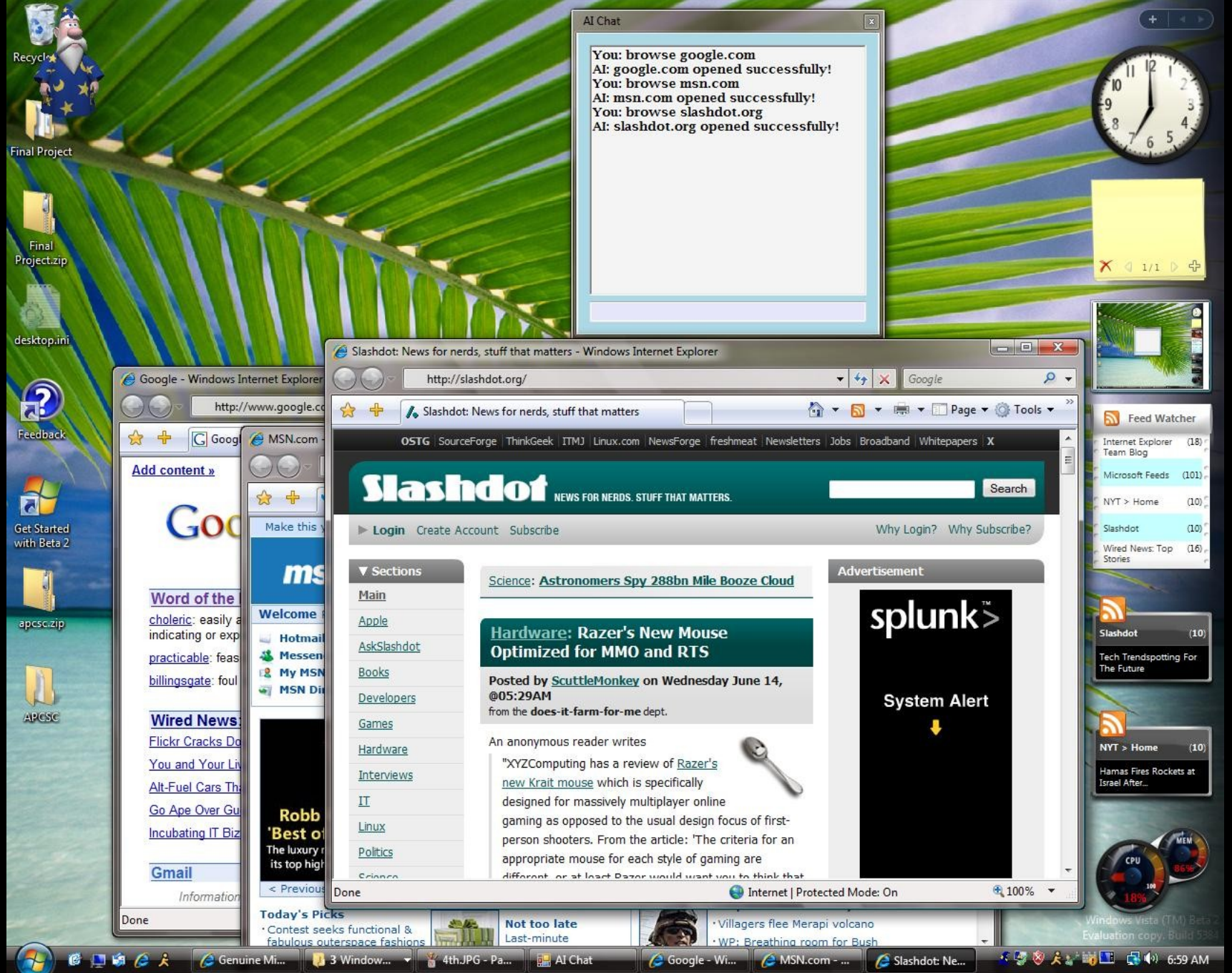
C# / Visual Studio .NET

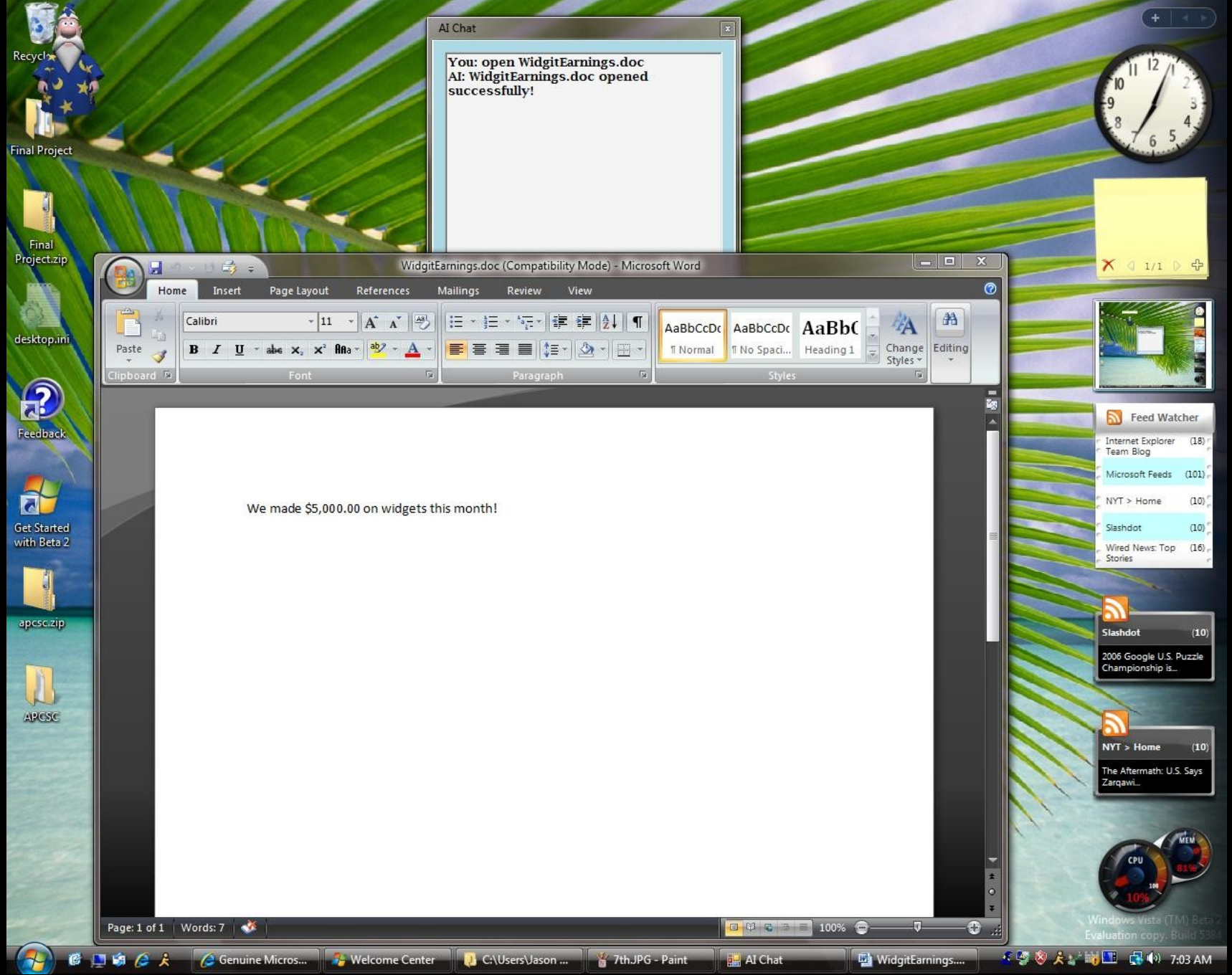
- Java Final Project - ”AI” Application
- XML Based Application
- Read sets of triggers and responses defined in an XML file.
- Response adder program allowed the user to input different triggers and responses to improve the database.
- Built in commands to do certain things such as starting applications and loading documents.

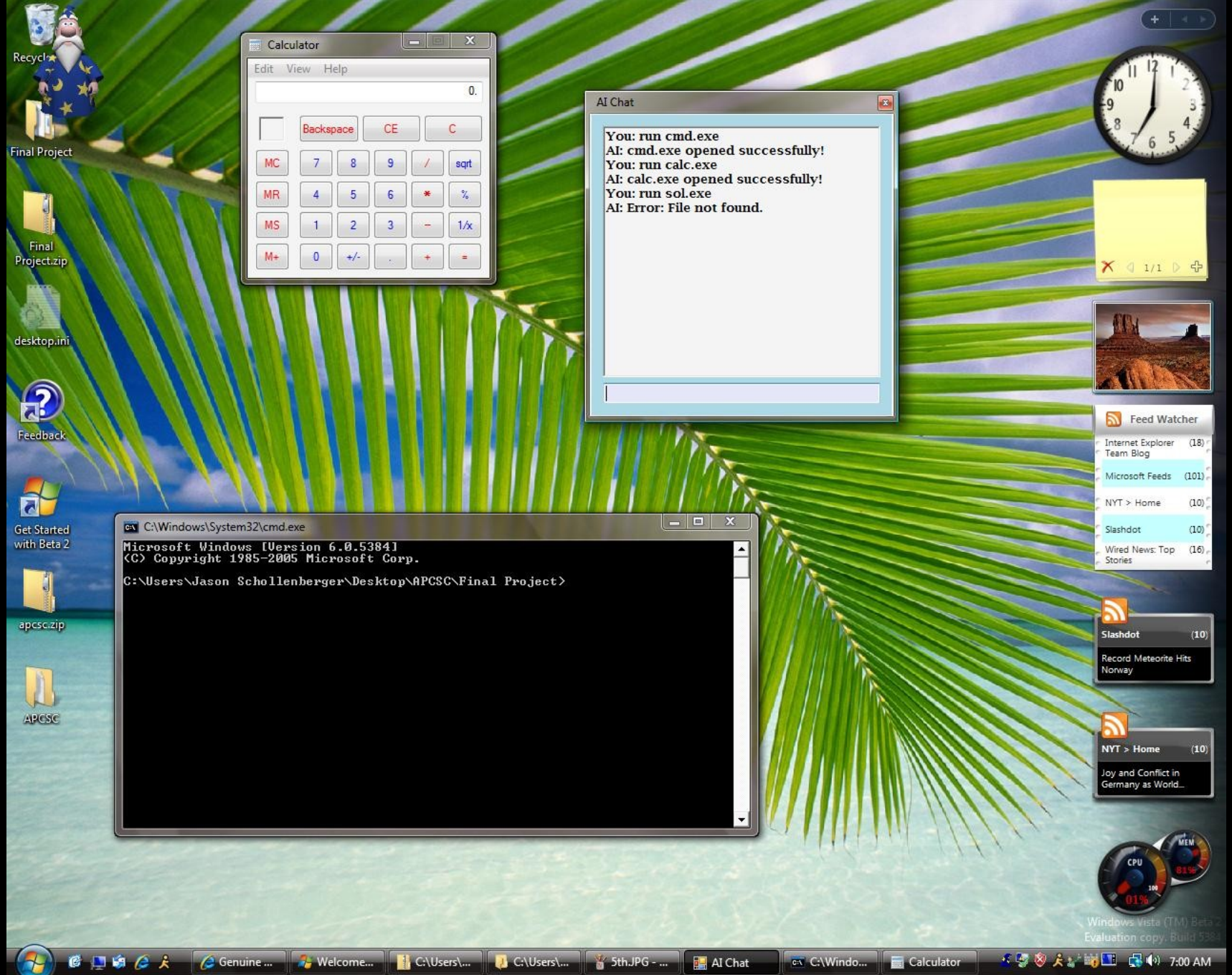

Recycle Bin
Final Project
Final Project.zip
desktop.ini
Feedback
Get Started with Beta 2
apcsc.zip
APCSC
AI Chat
Feed Watcher
Internet Explorer Team Blog (18)
Microsoft Feeds (101)
NYT > Home (10)
Slashdot (10)
Wired News: Top Stories (16)
Slashdot (10)
Jeff Pulver Is Betting on Internet...
NYT > Home (10)
Clinton Seeks Middle Ground in...
CPU
13%
69%
Windows Vista (TM) Beta 2
Evaluation copy. Build 5384
Index of /files - Win...
Welcome Center
C:\Users\Jason Scho...
C:\Users\Jason Scho...
AI Chat
6:55 AM


Recycle Bin
Final Project
Final Project.zip
desktop.ini
Feedback
Get Started with Beta 2
apcsc.zip
APCSC
My friends call me computer.
AI Chat
You: hello!
AI: How are you today?
You: what is your name?
AI: My friends call me computer.
Feed Watcher
Internet Explorer Team Blog (18)
Microsoft Feeds (101)
NYT > Home (10)
Slashdot (10)
Wired News: Top Stories (16)
Slashdot (10)
Tech Trendspotting For The Future
NYT > Home (10)
Wounds Salved, Clinton Returns to...
CPU
MEM
03%
75%
Windows Vista (TM) Beta 2
Evaluation copy. Build 5381
Index of /files - ...
Welcome Center
C:\Users\Jason S...
C:\Users\Jason S...
AI Chat
1st.JPG - Paint
6:56 AM


Recycle Bin
Final Project
Final Project.zip
desktop.ini
Feedback
Get Started with Beta 2
apcsc.zip
APCSC
Jason created me! He is amazing!
AI Chat
You: hello!
AI: How are you today?
You: what is your name?
AI: My friends call me computer.
You: who is your creator?
AI: Jason created me! He is amazing!
Feed Watcher
Internet Explorer Team Blog (18)
Microsoft Feeds (101)
NYT > Home (10)
Slashdot (10)
Wired News: Top Stories (16)
Slashdot (10)
DIY 4 GHz Dual Core Gaming Rig For...
NYT > Home (10)
Bush Makes a Surprise Visit to...
CPU
MEM
74%
25%
Genuine Microsoft S...
Welcome Center
C:\Users\Jason Scho...
C:\Users\Jason Scho...
AI Chat
6:58 AM


AI Chat
You: browse google.com
AI: google.com opened successfully!
You: browse msn.com
AI: msn.com opened successfully!
You: browse slashdot.org
AI: slashdot.org opened successfully!
Slashdot: News for nerds, stuff that matters - Windows Internet Explorer
http://slashdot.org/
Slashdot: News for nerds, stuff that matters
OSTG | SourceForge | ThinkGeek | ITMJ | Linux.com | NewsForge | freshmeat | Newsletters | Jobs | Broadband | Whitepapers | X
Slashdot
NEWS FOR NERDS. STUFF THAT MATTERS.
Search
Login Create Account Subscribe
Why Login? Why Subscribe?
Sections
Main
Apple
AskSlashdot
Books
Developers
Games
Hardware
Interviews
IT
Linux
Politics
Science: Astronomers Spy 288bn Mile Booze Cloud
Hardware: Razer's New Mouse Optimized for MMO and RTS
Posted by ScuttleMonkey on Wednesday June 14, @05:29AM
from the does-it-farm-for-me dept.
An anonymous reader writes
"XYZComputing has a review of Razer's new Krait mouse which is specifically designed for massively multiplayer online gaming as opposed to the usual design focus of first-person shooters. From the article: 'The criteria for an appropriate mouse for each style of gaming are
Advertisement
splunk>
System Alert
Done
Internet | Protected Mode: On
100%
Google - Windows Internet Explorer
http://www.google.c
Add content »
Word of the
choleric: easily a
indicating or exp
practicable: feas
billingsgate: foul
Wired News:
Flickr Cracks Do
You and Your Liv
Alt-Fuel Cars Tha
Go Ape Over Gu
Incubating IT Biz
Gmail
Done
MSN.com -
Make this
Welcome
Hotmail
Messen
My MSN
MSN Di
Robb
'Best o
The luxury
its top high
< Previous
Today's Picks
Contest seeks functional & fabulous outerspace fashions
Not too late
Last-minute
Villagers flee Merapi volcano
WP: Breathing room for Bush
Feed Watcher
Internet Explorer Team Blog (18)
Microsoft Feeds (101)
NYT > Home (10)
Slashdot (10)
Wired News: Top Stories (16)
Slashdot (10)
Tech Trendspotting For The Future
NYT > Home (10)
Hamas Fires Rockets at Israel After...
Recycle Bin
Final Project
Final Project.zip
desktop.ini
Feedback
Get Started with Beta 2
apcsc.zip
APCSC
Genuine Mi...
3 Window...
4th.JPG - Pa...
AI Chat
Google - Wi...
MSN.com - ...
Slashdot: Ne...
6:59 AM


AI Chat
You: open WidgitEarnings.doc
AI: WidgitEarnings.doc opened successfully!
WidgitEarnings.doc (Compatibility Mode) - Microsoft Word
Home
Insert
Page Layout
References
Mailings
Review
View
We made $5,000.00 on widgets this month!
Page: 1 of 1
Words: 7
100%
Recycle Bin
Final Project
Final Project.zip
desktop.ini
Feedback
Get Started with Beta 2
apcsc.zip
APCSC
Feed Watcher
Internet Explorer Team Blog (18)
Microsoft Feeds (101)
NYT > Home (10)
Slashdot (10)
Wired News: Top Stories (16)
Slashdot (10)
2006 Google U.S. Puzzle Championship is...
NYT > Home (10)
The Aftermath: U.S. Says Zarqawi...
CPU
MEM
10%
81%
Windows Vista (TM) Beta 2
Evaluation copy. Build 5384
Genuine Micros...
Welcome Center
C:\Users\Jason ...
7th.JPG - Paint
AI Chat
WidgitEarnings....
7:03 AM


Recycle
Final Project
Final Project.zip
desktop.ini
Feedback
Get Started with Beta 2
apcsc.zip
APCSC
Calculator
Edit View Help
0.
Backspace CE C
MC 7 8 9 / sqrt
MR 4 5 6 * %
MS 1 2 3 - 1/x
M+ 0 +/- . + =
AI Chat
You: run cmd.exe
AI: cmd.exe opened successfully!
You: run calc.exe
AI: calc.exe opened successfully!
You: run sol.exe
AI: Error: File not found.
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 6.0.5384]
(C) Copyright 1985-2005 Microsoft Corp.
C:\Users\Jason Schollenberger\Desktop\APCSC\Final Project>
Feed Watcher
Internet Explorer Team Blog (18)
Microsoft Feeds (101)
NYT > Home (10)
Slashdot (10)
Wired News: Top Stories (16)
Slashdot (10)
Record Meteorite Hits Norway
NYT > Home (10)
Joy and Conflict in Germany as World...
CPU
MEM
Windows Vista (TM) Beta 2
Evaluation copy. Build 5384
Genuine ...
Welcome...
C:\Users\...
C:\Users\...
5th.JPG - ...
AI Chat
C:\Windo...
Calculator
7:00 AM


I don't understand.
Recycle Bin
Final Project
Final Project.zip
desktop.ini
Feedback
Get Started with Beta 2
apcsc.zip
APCSC
AI Chat
You: hello!
AI: How are you today?
You: this command wont work.. =(
AI: I don't understand.
Feed Watcher
Internet Explorer Team Blog (18)
Microsoft Feeds (101)
NYT > Home (10)
Slashdot (10)
Wired News: Top Stories (16)
Slashdot (10)
DIY 4 GHz Dual Core Gaming Rig For...
NYT > Home (10)
Batsman Convicted of Howard Beach Hate...
CPU
26%
MEM
75%
Windows Vista (TM) Beta 2
Evaluation copy. Build 5384
Genuine Microsoft S...
Welcome Center
C:\Users\Jason Scho...
AI Chat
7:01 AM

Demo

- Source Code

Hardware

- Overclocking
- CPU / GPU / RAM
- Water Cooling
- Storage

Current Rig

- Intel Core i7 920 Processor (Bloomfield)
- ASUS P6T Deluxe V2 x58 Motherboard
- (ASUS) ATI Radeon HD4870x2 Video Card
- Mushkin Blackline 6GB (3x2GB) DDR3
- Thermaltake 1000W Modular PSU
- Windows 7 Professional 64-bit
- 80GB Intel X25-M SSD (OS)
- 60GB OCZ Agility SSD (Steam)
- 2x1TB Caviar Black (Data)

Overclocking - CPU

- i7 Overclocking Basics

- Front-side bus – Transfers data between CPU and Northbridge.
- No more Front Side Bus.
- Replaced by Quick Path Interconnect.
- Overclocking used to increase the FSB to increase CPU speed since CPU speed was determined by a multiple of the FSB.

Overclocking - CPU

- i7 Overclocking Basics

- Much easier now!
- Now overclocked by changing base clock and voltages.
- Increasing base clock also increases memory clock speed.
- “Unlocked” processors can change multiplier (bus/core ratio) instead of base clock.

Overclocking - CPU

- i7 Overclocking Basics

- Multiplier Math!
- Depending on your processor, you will have a different multiplier. i7 920 stock multiplier is 20*.
- Multiplying the base clock by the multiplier will result in the CPU clock speed. (Not FSB * Multiplier)
- e.g. 20 x 133 = 2660 MHz / 2.66 GHz

Overclocking - CPU

- i7 Overclocking Basics

- So what's this about Turbo Mode?
- Turbo mode automatically overclocks your processor by increasing the multiplier by 1.
- Built into the stock processor, activates when OS requires P0 state from CPU (Performance).
- Will run unless thermals prevent it from doing so.

Overclocking - CPU

- i7 Overclocking Basics

- Great! Lets do it!

- Previously... 20 x 133 = 2660 MHz / 2.66 GHz
- Now… 21 x 133 = 2793 MHz / 2.79 GHz

- Resulting in an extra 133 MHz for your consumption.

Overclocking - CPU

- Intel Core i7 920 - Results

- C0 Stepping
- Stock Clock: 2.66 GHz
- Overclocked: 4.33 Ghz
- Vcore: 1.4 V

Intel Core i7 920

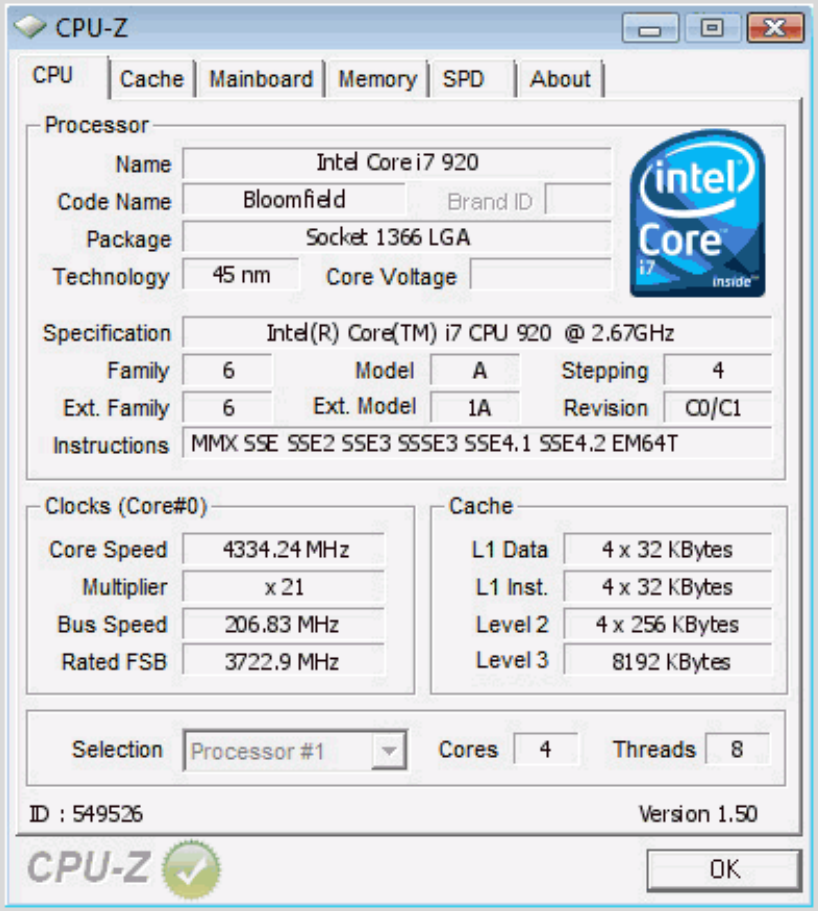
Windows Vista Business Edition SP1 (Build 6001)

CPU Arch : 1 CPU - 4 Cores - 8 Threads
CPU PSN : Intel Core i7 CPU 920 @ 2.67GHz
CPU EXT : MMX SSE SSE2 SSE3 SSSE3 SSE4.1 SSE4.2 EM64T
CPUID : 6.A.4 / Extended : 6.1A
CPU Cache : L1 : 4 x 32 / 4 x 32 KB - L2 : 4 x 256 KB
CPU Cache : L3 : 8192 KB
Core : Bloomfield (45 nm) / Stepping : C0/C1
Freq : 4334.24 MHz (206.83 * 21)

MB Brand : Asus
MB Model : P6T DELUXE V2
NB : Intel X58 rev 12
SB : Intel 82801JR (ICH10R) rev 00

GPU Type : GeForce 9800 GTX+
GPU Clocks : Core 300 MHz / RAM 100 MHz
DirectX Version : 10.0

RAM : 4096 MB DDR3 Triple Channel
RAM Speed : 620.5 MHz (2:6) @ 9-9-9-28
Slot 1 : 1024MB (PC3-8500E)
Slot 1 Manufacturer : OCZ
Slot 2 : 1024MB (PC3-8500E)
Slot 2 Manufacturer : OCZ
Slot 3 : 1024MB (PC3-8500E)
Slot 3 Manufacturer : OCZ
Slot 4 : 1024MB (PC3-8500E)
Slot 4 Manufacturer : OCZ



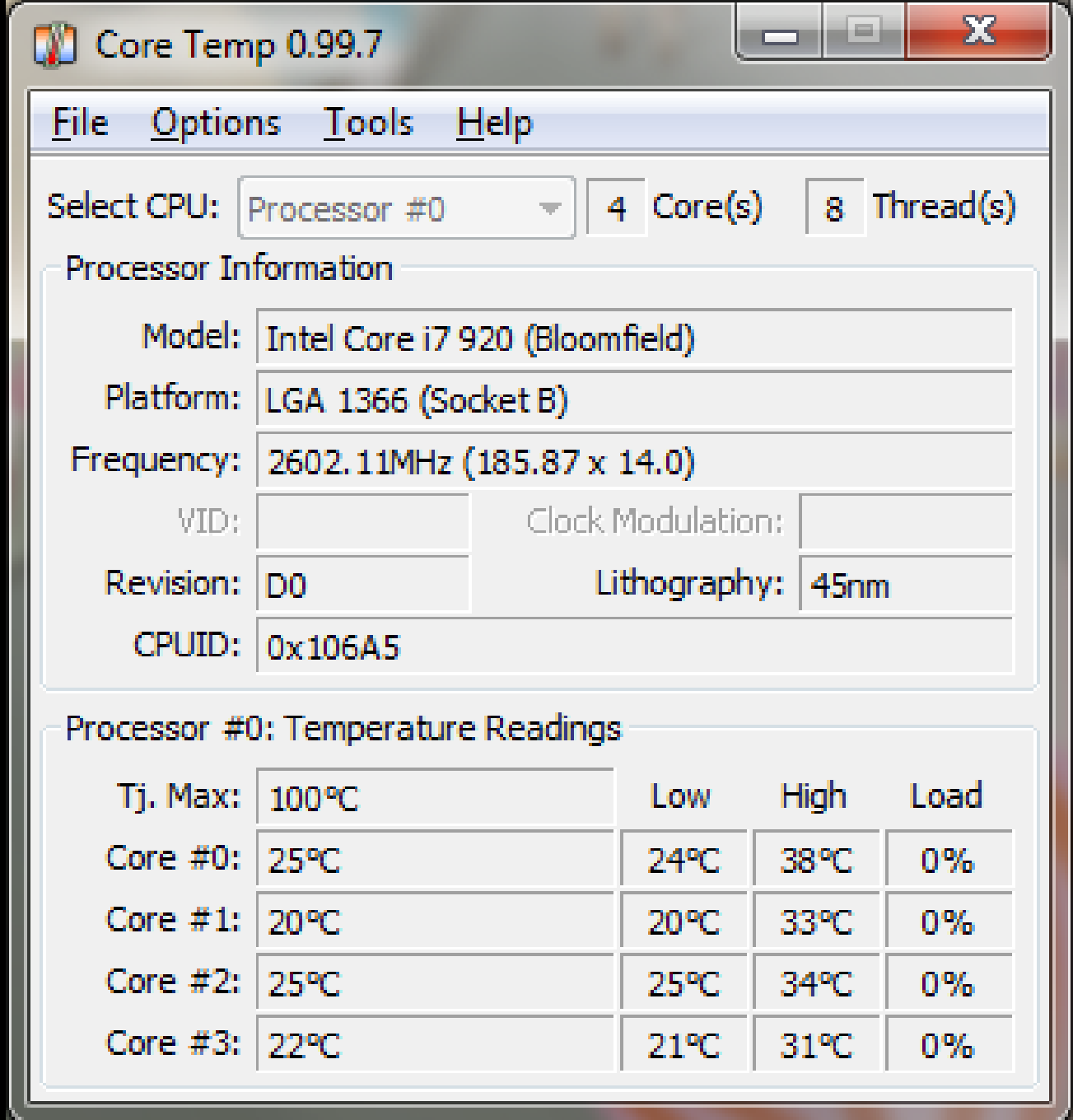
CPU-Z Forum Banner (BB Code below)

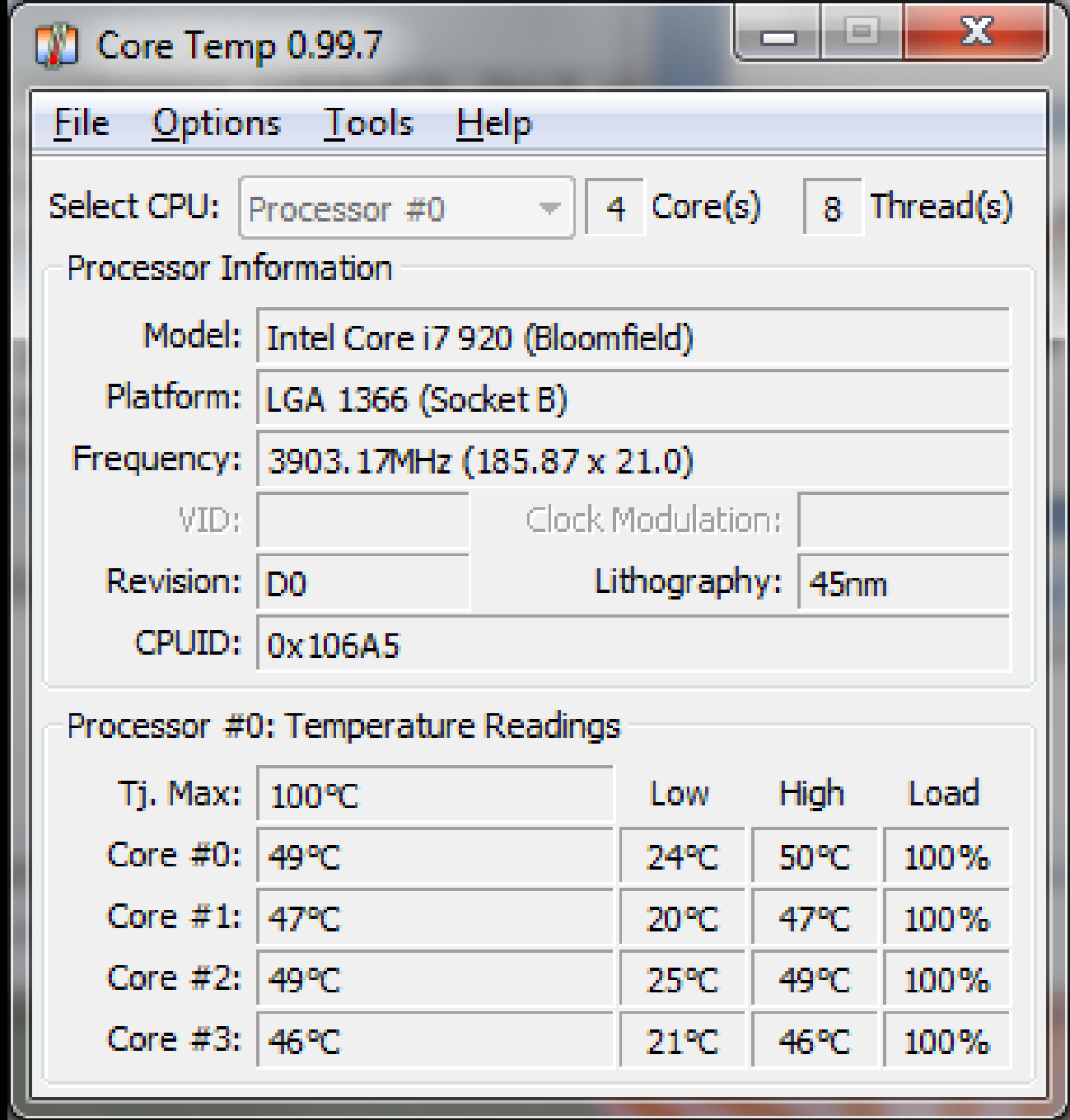

```
[url=http://valid.canardpc.com/show_oc.php?id=549526][img]http:/
```

Overclocking - CPU

- Intel Core i7 920 - Results

- D0 Stepping
- Stock Clock: 2.66 GHz
- Overclocked: 4.00 Ghz
- Vcore: 1.22 V
- Temperature = ~30*C Idle / ~60*C Load


Core Temp 0.99.7
File Options Tools Help
Select CPU: Processor #0 4 Core(s) 8 Thread(s)
Processor Information
Model: Intel Core i7 920 (Bloomfield)
Platform: LGA 1366 (Socket B)
Frequency: 2602.11MHz (185.87 x 14.0)
VID: Clock Modulation:
Revision: D0 Lithography: 45nm
CPUID: 0x106A5
Processor #0: Temperature Readings
Tj. Max: 100°C Low High Load
Core #0: 25°C 24°C 38°C 0%
Core #1: 20°C 20°C 33°C 0%
Core #2: 25°C 25°C 34°C 0%
Core #3: 22°C 21°C 31°C 0%

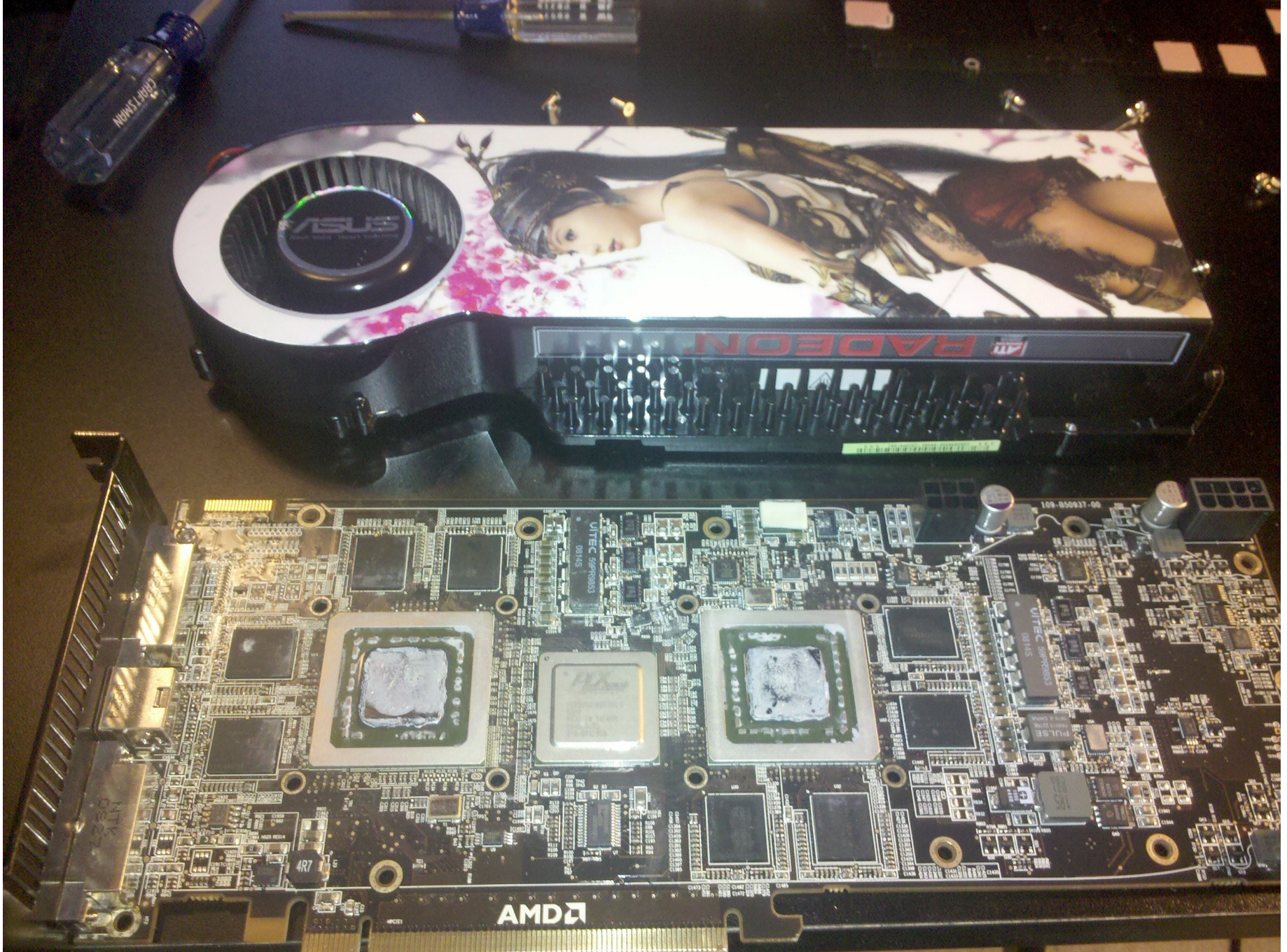

Core Temp 0.99.7
File Options Tools Help
Select CPU: Processor #0 4 Core(s) 8 Thread(s)
Processor Information
Model: Intel Core i7 920 (Bloomfield)
Platform: LGA 1366 (Socket B)
Frequency: 3903.17MHz (185.87 x 21.0)
VID: Clock Modulation:
Revision: D0 Lithography: 45nm
CPUID: 0x106A5
Processor #0: Temperature Readings
Tj. Max: 100°C Low High Load
Core #0: 49°C 24°C 50°C 100%
Core #1: 47°C 20°C 47°C 100%
Core #2: 49°C 25°C 49°C 100%
Core #3: 46°C 21°C 46°C 100%

Overclocking - GPU

- Why let the CPU have all the fun?
- When you need those few extra frame rates – crank up the GPU clock and memory clock.
- Temperature is more of an issue with GPUs as they tend to run hotter than CPUs.
- For this example, I'll be using the overclocking utilities built into the ATI drivers.

Overclocking - GPU

- ATI Radeon HD4870x2
- X2 Indicates two GPUs on one PCB
- 800 Stream Processing Units
- Supports up to 2560x1600
- Can scale up to four GPUs with another 4870x2 using CrossFireX.


ASUS
RADEON
AMD


AMD


Catalyst™ Control Center
Graphics
Options
ATI Overdrive™
ATI RADEON PREMIUM GRAPHICS
1.ATI Radeon HD 4870 X2 [SyncMaster]
Select GPU to configure:
ATI Radeon HD 4870 X2 [SyncMaster]
Auto-Tune...
Enable ATI Overdrive™
High Performance GPU clock settings:
507
800
800MHz
High Performance Memory clock settings:
250
1000
950MHz
Test Custom Clocks...
Enable Manual Fan Control
20
100
50%
Current Values
GPU Clock:
Memory Clock:
507MHz
500MHz
Temperature:
21 °C
Activity:
0%
Fan Speed:
27%
Basic...
OK
Apply
Discard
Defaults

Overclocking - GPU

- ATI Radeon HD4870x2
- Results
- Stock GPU Clock: 750MHz
- Stock Memory Clock: 900MHz
- Overclocked GPU Clock: 800MHz
- Overclocked Memory Clock: 950MHz
- Temperature: ~25*C Idle / ~50*C Load

So….

- Those temperature pictures are photoshopped right?

- You can’t expect us to believe a 4ghz CPU is running at 20*C and an overclocked video card is idling at 21*C…

Watercooling

- Not so far from what you would imagine it is.
- Contains a pump, reservoir, radiator with fan(s) as a heat exchanger, tubes, barbs and waterblock(s).
- Water dissipates the heat from the cooling components quicker than air can.

Pump

- The pump is (obviously) used to circulate the water throughout the system.
- It wouldn't be much good if the water just sat and got hot.

Reservoir

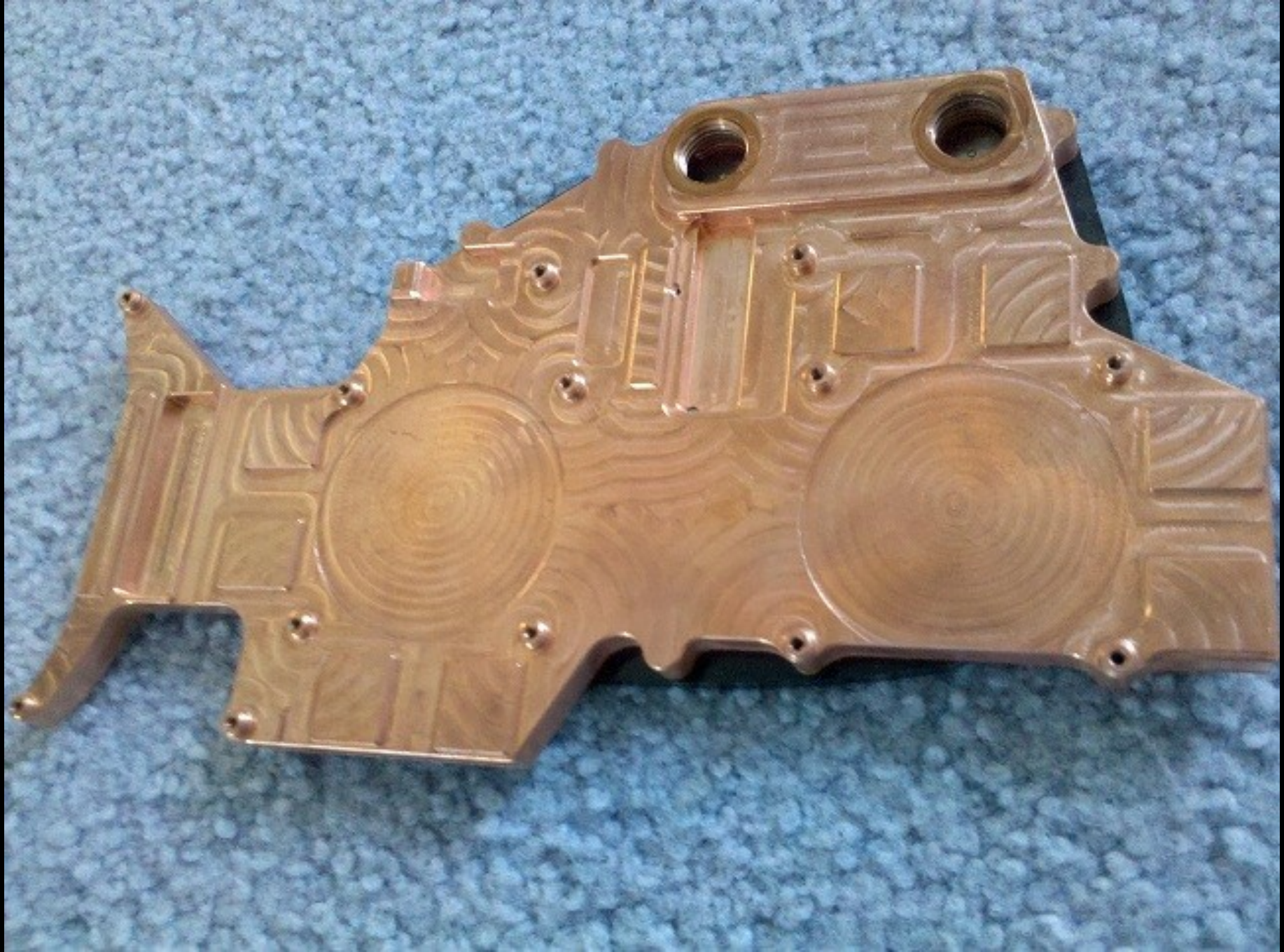
- Reservoirs hold extra water to keep the pump from running dry (bad!)

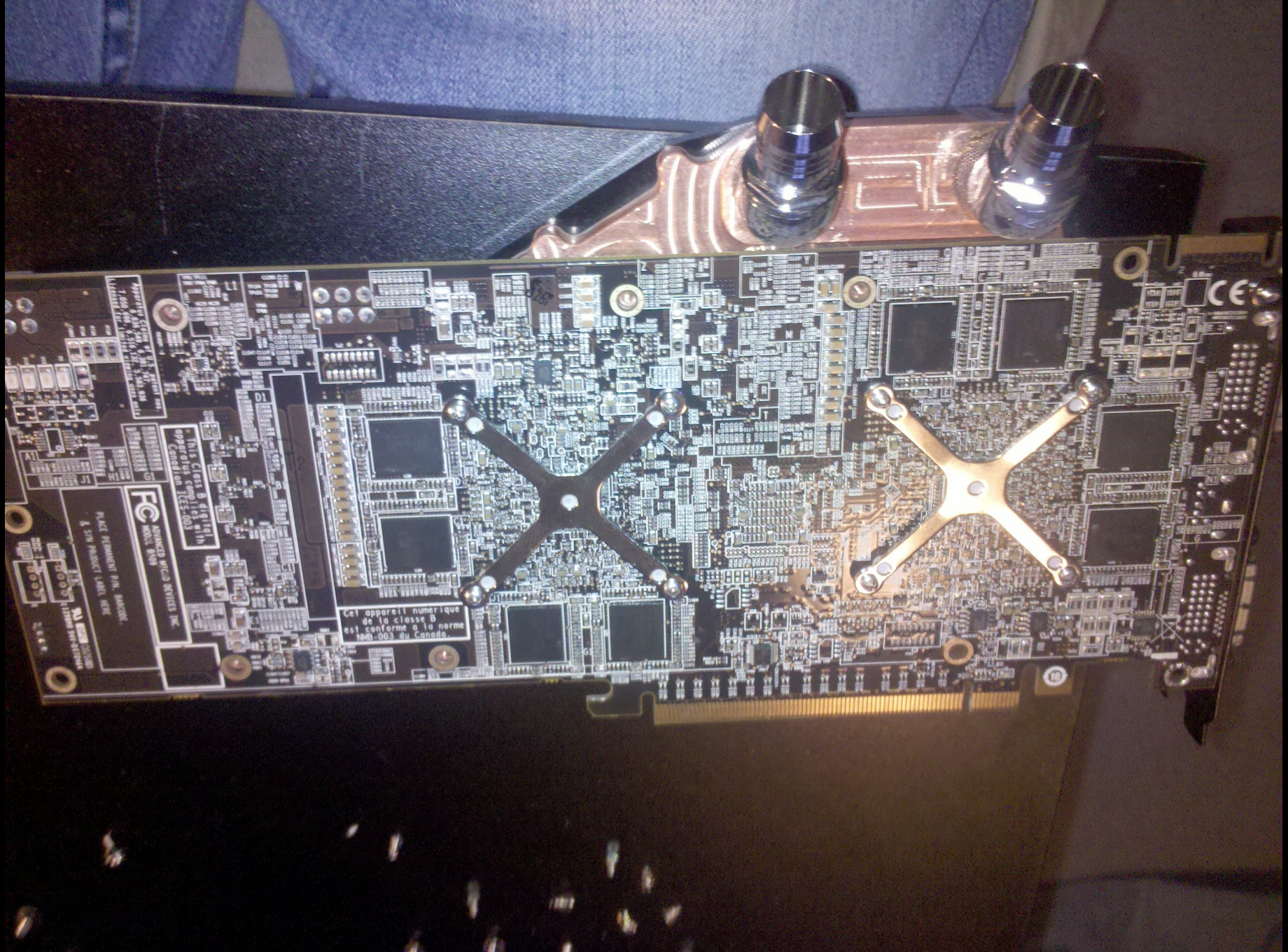
Radiator / Fans

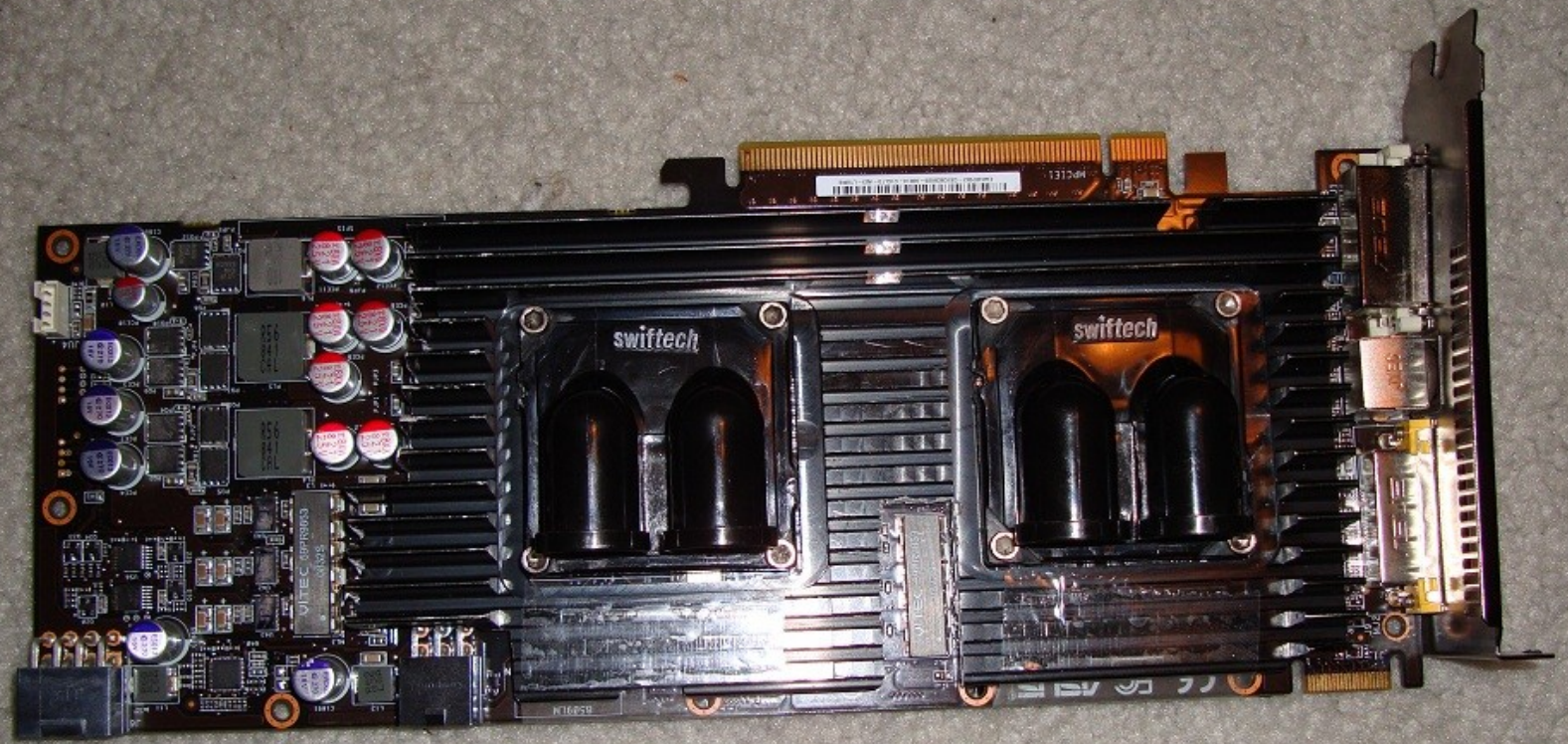
- Come in various sizes depending on application. Sometimes are housed inside the computer, space permitti

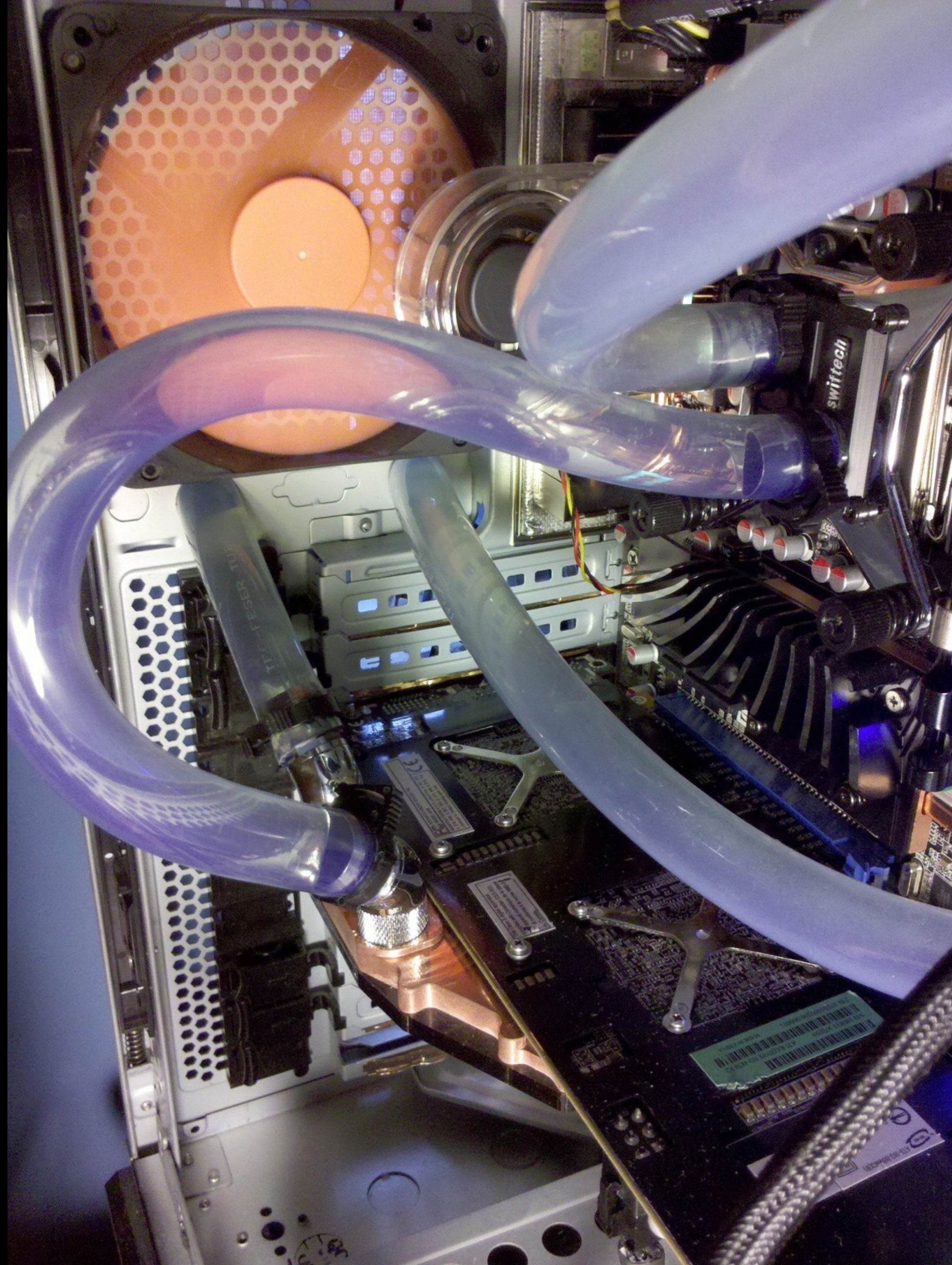
Waterblocks

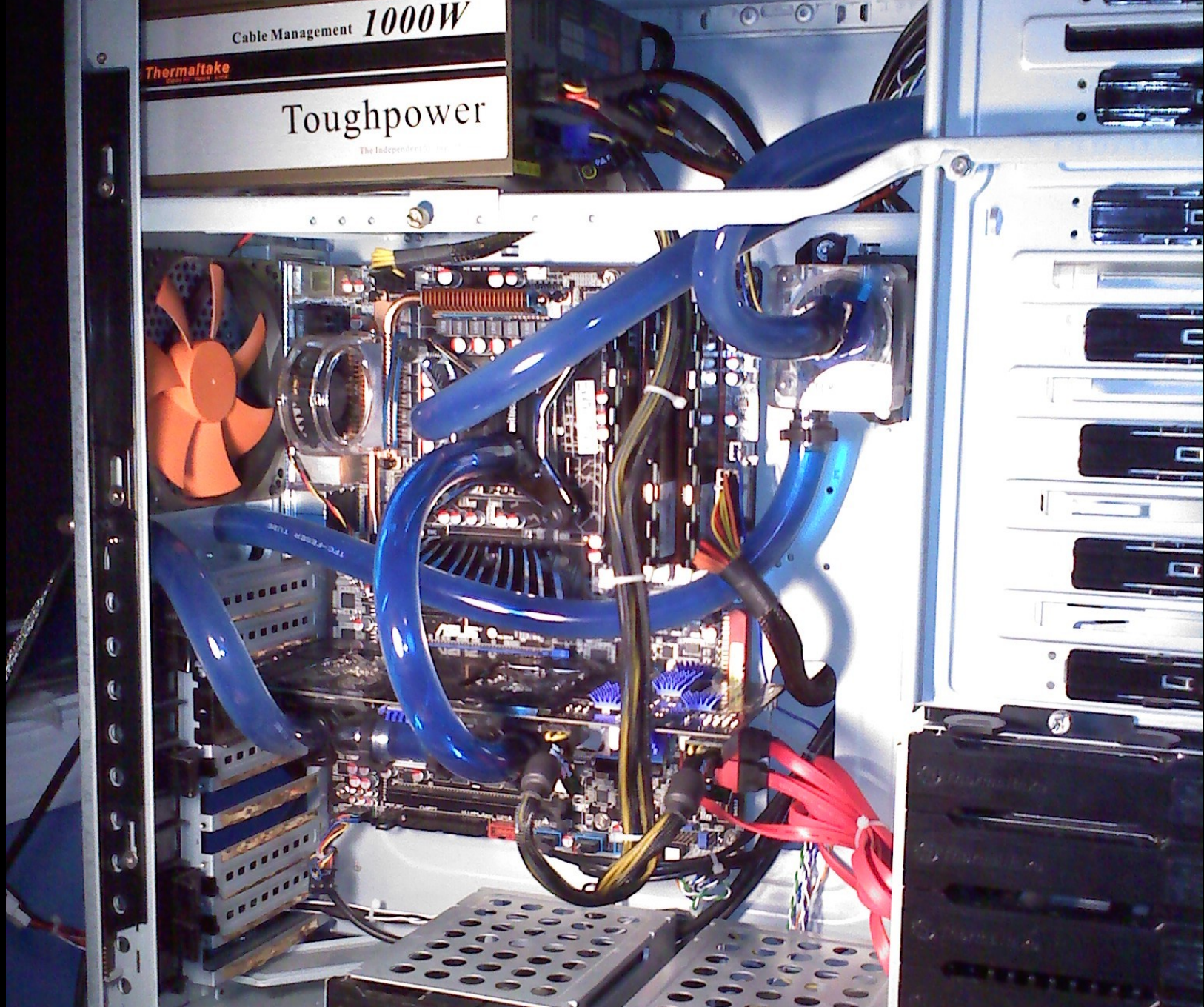
- Usually made from copper or aluminum.
- Specially made for certain sockets and hardware components, just like air coolers.



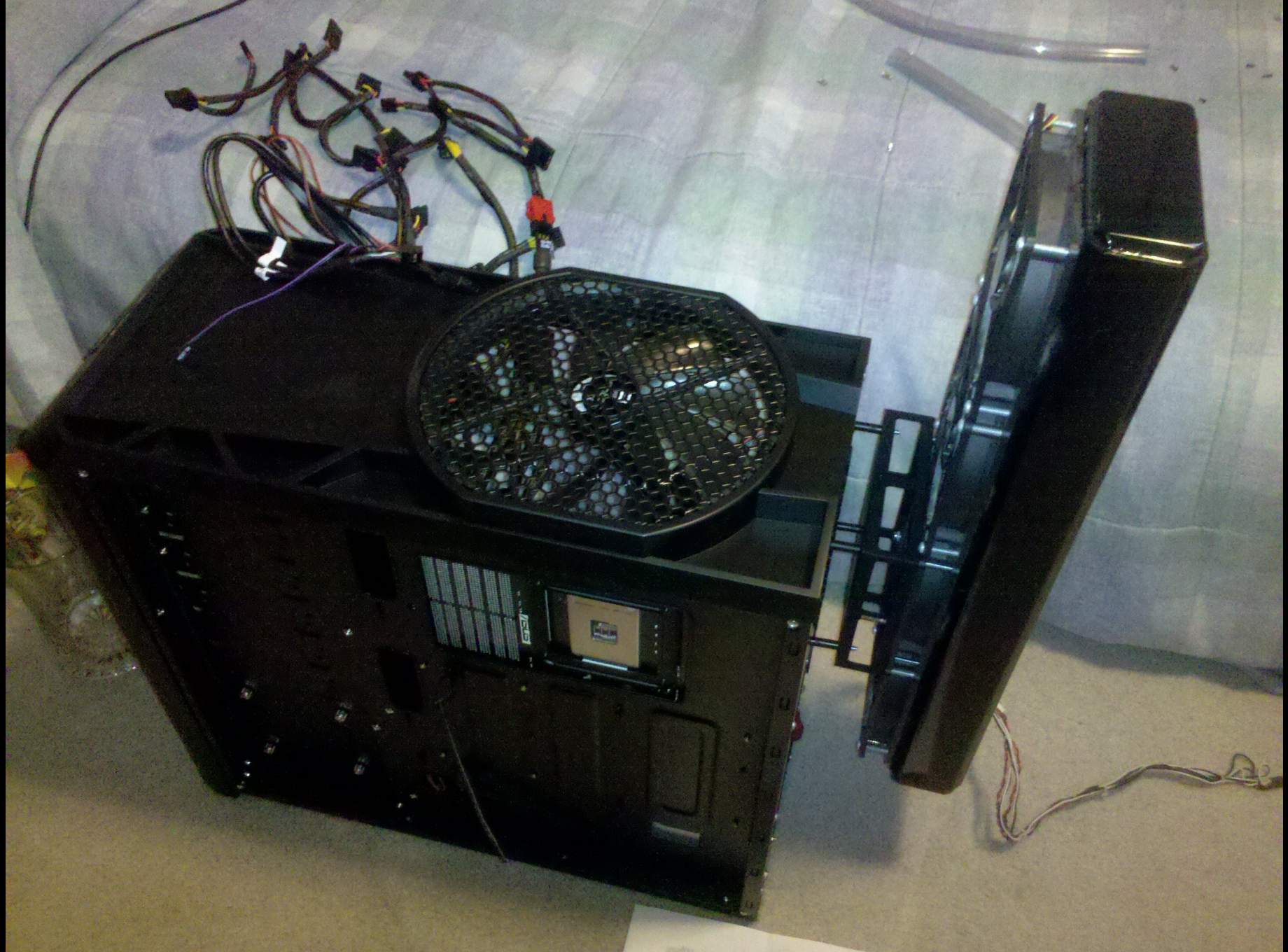

Cet appareil numerique
de la classe B
est conforme a la norme
NMB-003 du Canada.

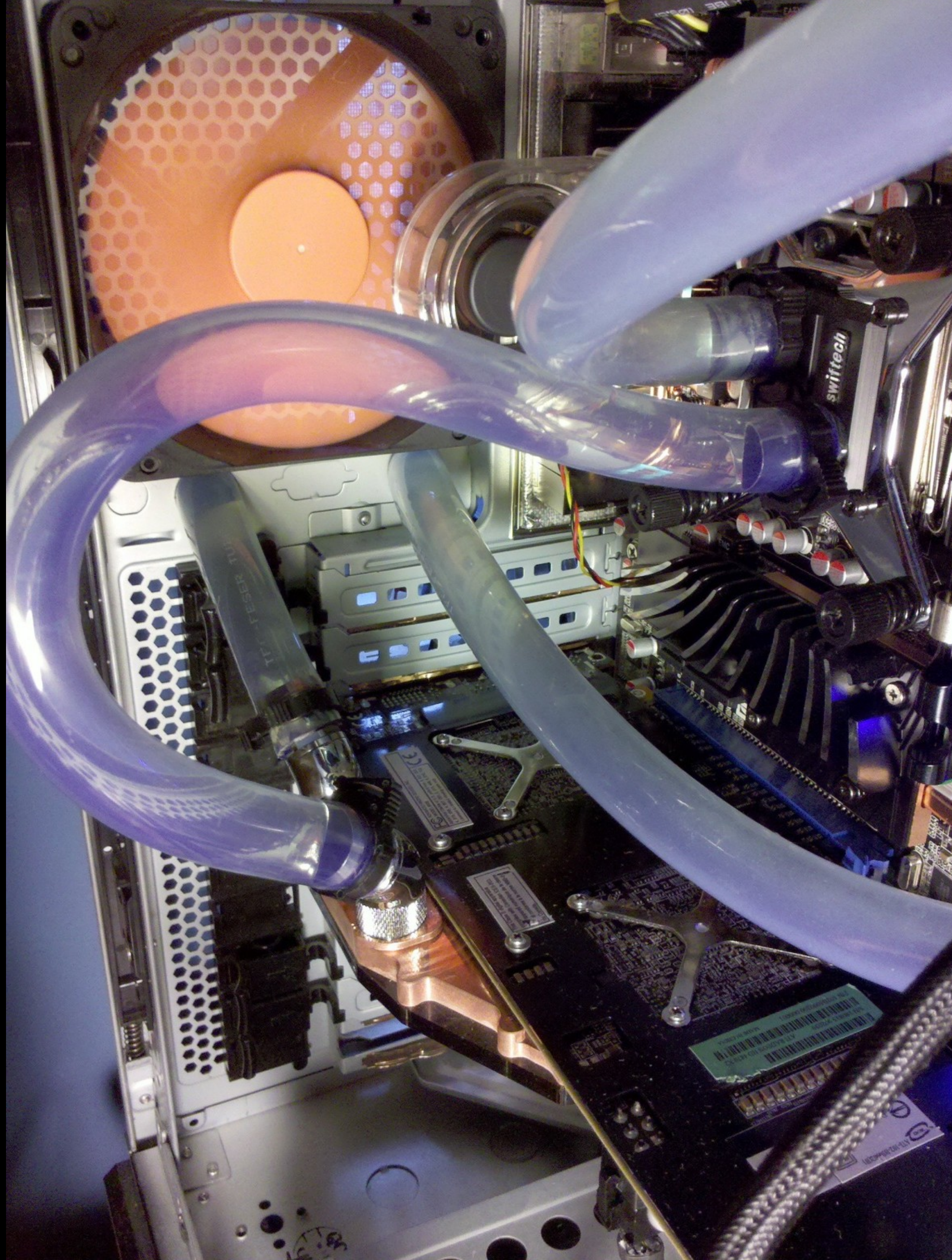

swiftech
swiftech

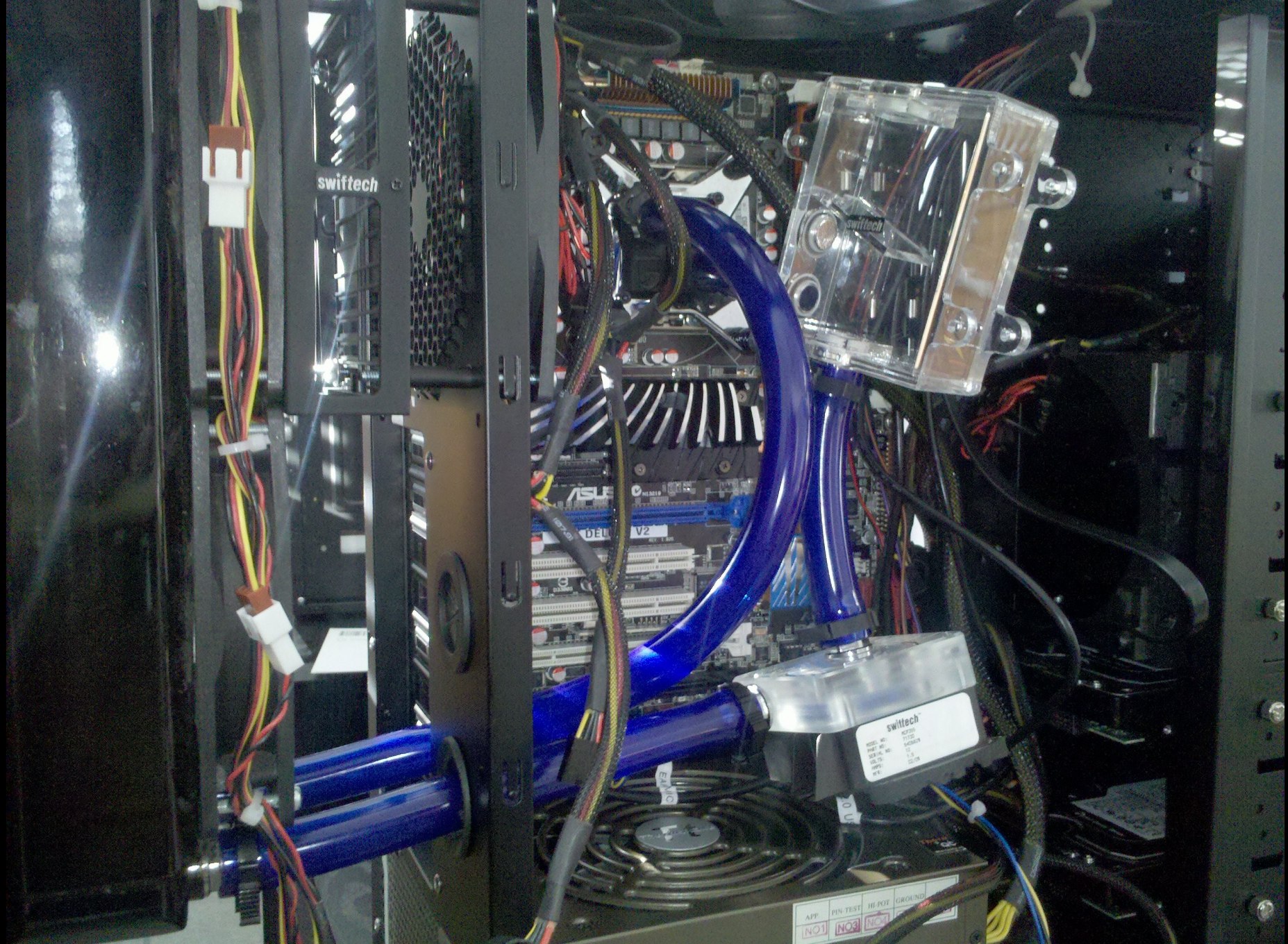

swiftech


Cable Management 1000W
Thermaltake
Toughpower


Toughpower




swiftech


swiftech
swiftech
swiftech
ASUS
V2
APP
PIN-TEST
HI-POT
GROUND
NO1
NO3
NO1

Storage

- Two main types of storage when dealing with desktop computers:
  - Hard Disk Drives
  - Solid-State Drives

HDDs

- Uses rotating platters made of aluminum, glass, or ceramic composites.
- Actuator arm moves the heads into the right place for data reading / writing.
- Data is encoded by magnetic heads above attached to the actuator arm.
- Getting very cheap per GB.


Western Digital
www.westerndigital.com
WD3000GLFS
WD VelociRaptor™
S/N : WXL408737946
Recertified
MDL : WD3000GLFS – 01F8U0
Product warranty will be void if seal, label or cover is removed or damaged.
WWN:50014EE0AB4DDE95
LBA 586072368
DATE: 23 JAN 2010 P
300GB
DCM : EBCV2B
5VDC 0.95A
R/N : 701543
12VDC 0.30A
U.S. Patents 6178056 5956196 6289484 6263459
RoHS
Canada ICES – 003 Class B/ NMB – 003 Classe B
Product of Malaysia
Do not cover any drive holes
SERIAL ATA
FRAGILE
D33015
E101559
WD1 701543(B)


INTERFACE
SYNC
FAN
HDD 1
HDD 2
HDD 3
HDD 4
StarTech.com

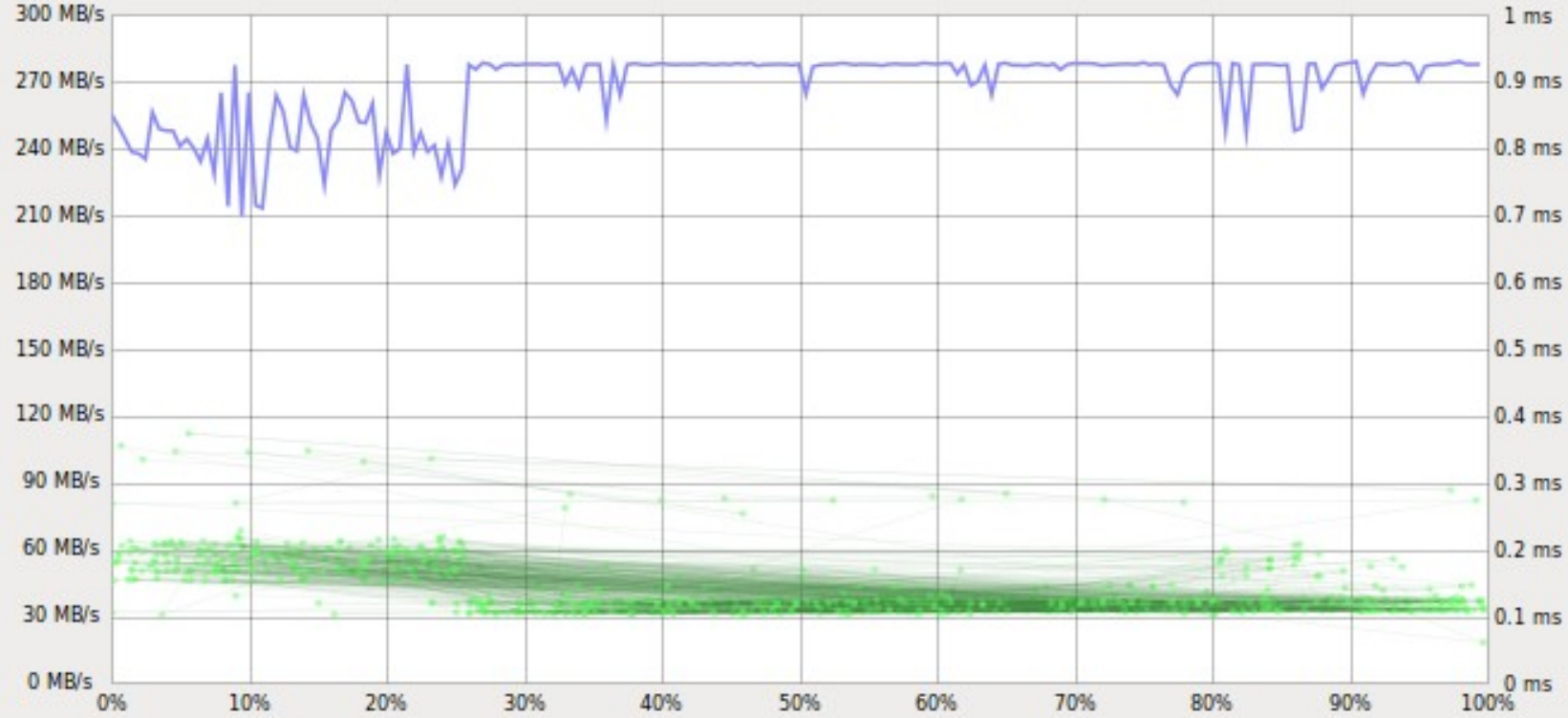

HDD 1
HDD 4

SSDs

- Different in that they use microchips (usually NAND flash memory (floating gate transistors)) to store data, and no moving parts.
- Uses Non-volatile flash memory, unlike the memory inside your computer.
- Low access time and low latency.
- More expensive per GB


WHERE SPEED IS!
EXTREME SPEED EXTREME POWER
PHOENIX PRO
SATA II 2.5"
SOLID STATE DRIVE
120GB

120 GB Solid-State Disk (ATA FM-25S2S-120GBP2) – Benchmark



Minimum Read Rate:	209.2 MB/s	Minimum Write Rate:	–
Maximum Read Rate:	278.7 MB/s	Maximum Write Rate:	–
Average Read Rate:	267.1 MB/s	Average Write Rate:	–
Last Benchmark:	18 hours ago	Average Access Time:	0.1 ms

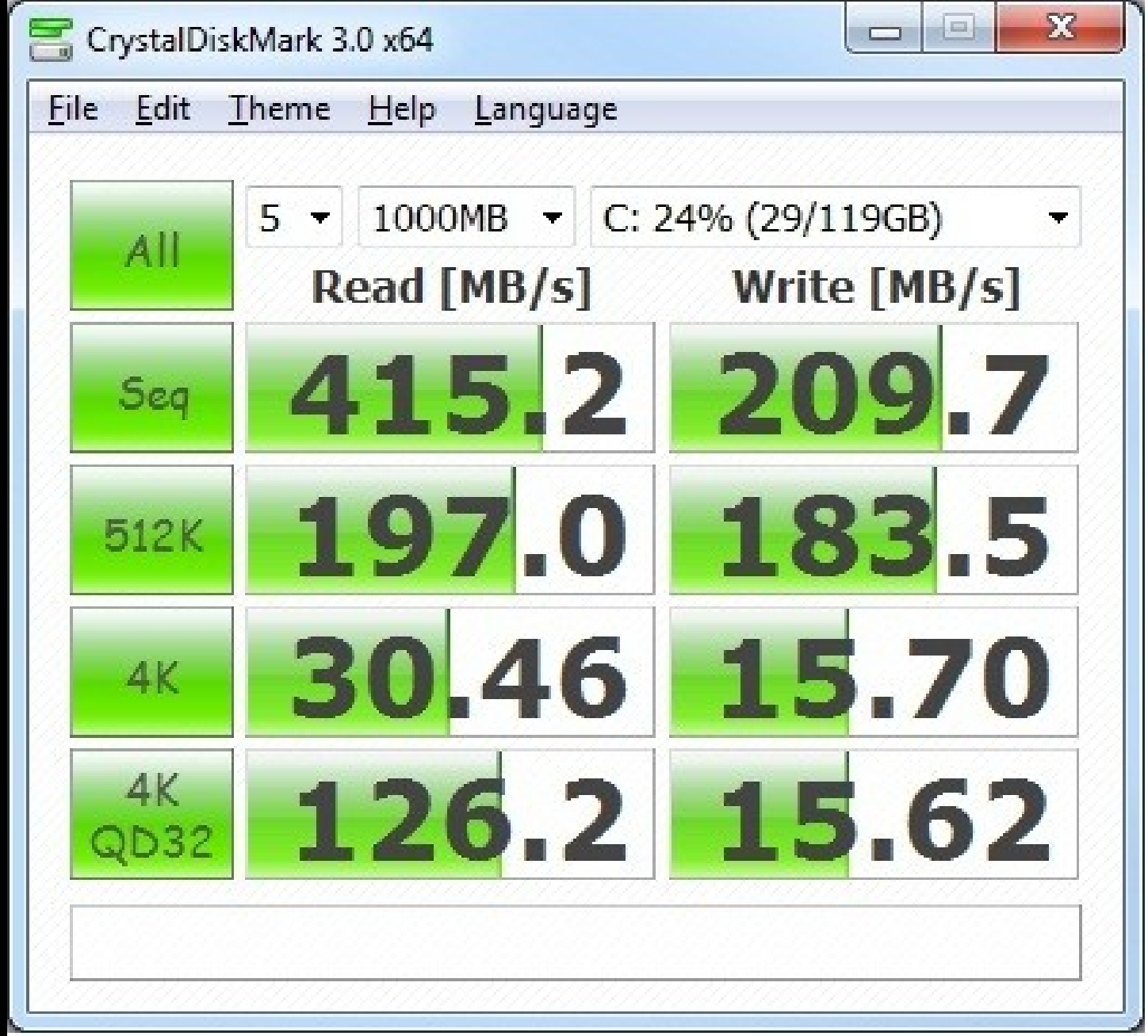
Start Read-Only Benchmark
Measure read rate and access time

Start Read/Write Benchmark
Measure read rate, write rate and access time

SSDs In Raid 0?

- Practically just adds together the performance of each drive.

- Advertised Performance of 1 OCZ Agility Drive
- Sequential Access - Read
- Up to 230 MB/s
- Sequential Access - Write
- Up to 135 MB/s


CrystalDiskMark 3.0 x64
File Edit Theme Help Language
All
5
1000MB
C: 24% (29/119GB)
Read [MB/s]
Write [MB/s]
Seq
415.2
209.7
512K
197.0
183.5
4K
30.46
15.70
4K QD32
126.2
15.62

- Questions?

Future Topics

- X10 Home Automation
- MegaSquirt Electronic Fuel Injection System
- SQL & JS Security / Exploits
- Android Basics & Development