Considerations When Buying a Computer for Trading

AfTA Presentation

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Considerations When Buying a Computer for Trading

Outline

Introduction
What Traders Need
Current State of Technology
> Internet Connection
> Processors
> Memory
> Storage Drives
> Video Cards
> Monitors

Disaster Prevention
Websites for Research
Brand Quality
Building your own Trading Computer

Recommendations/ Thoughts/ Biases:

1) Buy a PC for trading, not an Apple

2) Have a dedicated computer for only trading

3) Have another one for surfing/ browsing and email

4) DON'T use the trading computer for surfing and email

Trading computer systems cover a wide range:

Basic off-the-shelf Intel Core 2 Duos
Intel Pentium Dual Core
AMD Phenom or Athlon
Custom made Core 2 Quad Extreme
Xeon Workstation/ servers

Hardware system requirements vary:

Real-time trading and charting software used
Amount and type of data (tick charts resource intensive)
Amount of real-time analysis required

Budget

Bare bones PC	$500
Typical	$1,000-$1,500
Power user	$2,000 and up

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But the cost could be much less if you only paper trade…

What Traders Need

Fast and Powerful

Multiple Monitor setups

(lots of screen real estate)

STABLE systems

(reliable, quality components)

Quiet!

Bells and whistles are unnecessary

Current State of Technology

Internet Connection

Processors

Memory

Storage Drives

Video Cards

Monitors

Internet Connection
You just need a good, fast, stable connection

1) Verizon FIOS

2) DSL

3) Cable

4) Satellite

5) Cellular

6) Dial up

Processors

Intel is still the industry leader, but AMD does make some very good chips.

Multiple Cores:

Dual core is mainstream;

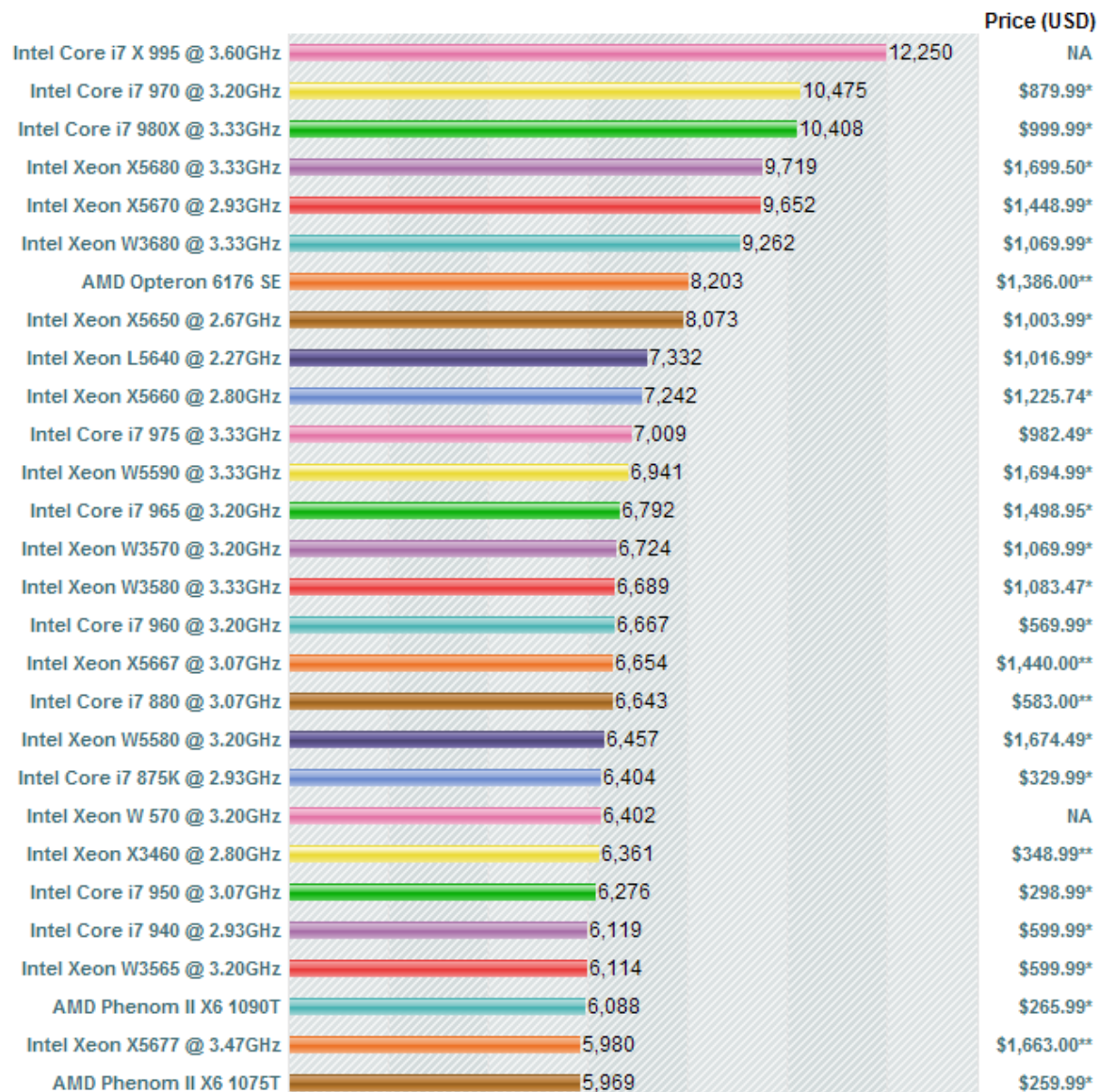Quad core found in mid to higher end systems;

Six core is cutting edge.

Stay away from systems with overclocked CPUs.

Buy toward the lower end of a family line.

PassMark - CPU Mark
High End CPUs - Updated 1st of October 2010

CPU	CPU Mark	Price (USD)
Intel Core i7 X 995 @ 3.60GHz	12,250	NA
Intel Core i7 970 @ 3.20GHz	10,475	$879.99*
Intel Core i7 980X @ 3.33GHz	10,408	$999.99*
Intel Xeon X5680 @ 3.33GHz	9,719	$1,699.50*
Intel Xeon X5670 @ 2.93GHz	9,652	$1,448.99*
Intel Xeon W3680 @ 3.33GHz	9,262	$1,069.99*
AMD Opteron 6176 SE	8,203	$1,386.00**
Intel Xeon X5650 @ 2.67GHz	8,073	$1,003.99*
Intel Xeon L5640 @ 2.27GHz	7,332	$1,016.99*
Intel Xeon X5660 @ 2.80GHz	7,242	$1,225.74*
Intel Core i7 975 @ 3.33GHz	7,009	$982.49*
Intel Xeon W5590 @ 3.33GHz	6,941	$1,694.99*
Intel Core i7 965 @ 3.20GHz	6,792	$1,498.95*
Intel Xeon W3570 @ 3.20GHz	6,724	$1,069.99*
Intel Xeon W3580 @ 3.33GHz	6,689	$1,083.47*
Intel Core i7 960 @ 3.20GHz	6,667	$569.99*
Intel Xeon X5667 @ 3.07GHz	6,654	$1,440.00**
Intel Core i7 880 @ 3.07GHz	6,643	$583.00**
Intel Xeon W5580 @ 3.20GHz	6,457	$1,674.49*
Intel Core i7 875K @ 2.93GHz	6,404	$329.99*
Intel Xeon W 570 @ 3.20GHz	6,402	NA
Intel Xeon X3460 @ 2.80GHz	6,361	$348.99**
Intel Core i7 950 @ 3.07GHz	6,276	$298.99*
Intel Core i7 940 @ 2.93GHz	6,119	$599.99*
Intel Xeon W3565 @ 3.20GHz	6,114	$599.99*
AMD Phenom II X6 1090T	6,088	$265.99*
Intel Xeon X5677 @ 3.47GHz	5,980	$1,663.00**
AMD Phenom II X6 1075T	5,969	$259.99*

Memory (RAM)

Generally the more the better.

32 bit OS's not able to utilize more than ~3.5GB or so of RAM; better to go with a 64-bit OS to add more than 4GB of RAM.

DDR3 is the current performance state; cheaper systems use DDR2.

Speed varies (e.g., 800, 1200, 1333, 1600), and will depend on the processor speed.

Memory also comes in error correcting and non-error correcting.

The Intel i7 processor family (and the related Xeon) require memory to be in "triplets," e.g., 3Gig, 6Gig, etc.

The AMD family only requires memory to be in "pairs," e.g., 2Gig, 4Gig, etc.

Storage Drives

IDE and SCSI have mostly been replaced with SATA.

Drives generally come in 2 types:

7200 RPM (most common) and 10,000;

and two sizes: 2.5" (laptop) and 3.5" (desktop).

1 Terabyte is sufficient and costs less than $100.

Better to have 2 drives that back each other up than 1 drive and risk losing everything.

Video Cards

Don't need the latest & greatest 3D gaming graphics card.

Need 2D graphics cards made especially for the finance industry.

Many board manufacturers, but most all chips are manufactured by ATI, NVIDIA or Matrox.

On-line recommendations for 2D graphics cards include the NVIDIA 290 (2 monitors) and 420 (4 monitors).

If using multiple cards, get cards from the same manufacturer.

Caution: cannot use a digital only output with analog monitors.

Note: the better video cards are plugged into a PCIeX16 slot; the other slots (PCI, PCIeX1, etc.) will not work as well for good video cards. Computers with more than one PCIeX16 slots are rare.

Connector Types: Graphics Card to Monitor

VGA Connector (Analog)

DVI Connector

DVI Digital & Analog

DVI Digital Only

HDMI Connector
(digital only)
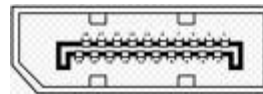
Display Port Connector
(digital only)

Monitors

More monitor space is better

A few things to watch out for:

1) Monitors whose size is larger than what the resolution warrants. You normally expect:

      1600x900 will be 20-21 inch;

      1920x1080 (or 1680x1050) will be 22-23 inch; and

      1920x1200 will be 24 inch or larger.

2) Monitors with resolution higher than 1920x1200 command a massive price premium.

3) Easy to arrange 4 monitors of the same size and resolution.

4) Watch out for the width of the bezel.

5) Make sure you have the connectors you require.

Disaster Prevention

What happens if...?:

       The electricity fails;

       The internet connection fails;

       A video card dies;

       A hard drive goes crazy;

       Malicious software gets hold of my computer;

       and so on.

Recommend a hardware "firewall" between your computer(s) and the internet.

Get a program like Acronis that makes a mirror image of the hard disk.

Get good anti-virus and spyware programs.

Websites for Research

elitetrader.com

tomshardware.com

newegg.com

bannronn.com

pcmag.com

Brand Quality

Dell vs. HP vs. Lenovo workstations:

        infoworld.com/d/hardware/nehalem-workstations-new-era-in-performance-600

Top Ten Business Computers:

        computers.toptenreviews.com/business

Trading Computer builders:

Falcon Trading Systems	tradingcomputers.com
Magic Micro	magicmicro.com
EMC	emcworkstations.com
Visionman	visionman.com
Cerise	cerise.com
Cyberpower	cyberpower.com

Building your own Trading Computer

Bolimomo's recommendation on building a trading computer (elitetrader.com):

#1. Pick your processor first.

#2. Pick a motherboard.

#3. Pick your RAM (memory).

#4. Pick the chassis that will hold all your disk drives.

#5. Pick the power supply.

#6. Pick the hard drive.

#7. Pick an optical drive (DVDROM/ CDROM).

#8. Pick your operating system.

What I Bought

Dell Precision T3500 Workstation

Intel Xeon W3520 CPU (2.67GHz, 4 core, 64-bit, 8MB cache, Nehalem series)

6 Gig Memory (1333 GHz, Error Correcting) – max memory 24 Gig

320 GB Hard Disk Drive (added 2nd 640 GB Drive after Purchase)

6X Rewritable Blu-Ray Disk

NVIDIA 420 Graphics Card (4 monitor support)

Energy Star Power Supply

MS Windows 7 Professional, 64 bit

Purchased from Dell Outlet Center as a "scratch and dent" (not refurbished).
Estimated I paid 60% of full retail due to a special sale at the time.