

Re: whodunnit: motherboard dead

Source: <http://sci.tech-archive.net/Archive/sci.electronics.basics/2005-01/0447.html>

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You are correct that static electricity probably is not reason for failure. But static electricity creates overstress. Overstress results in parts slowly getting worse days or months later. Yes, static electricity does remain a possibility. Just not a more likely reason for failure.

More likely is infant mortality. IEEE Spectrum in a recent issue featured a cover story on why the human body fails. Charts there demonstrate how infant mortality causes so many failures in so short a period – and a general trend on when failures happen.

Now for another lesser reason for failure. Does the power supply manufacturer provide a long list of numerical specs. How to suspect the worst (in any technical product). The manufacturer so fears you might learn facts as to deny you those facts. In reality, maybe one percent of consumers understands specs. But without numerical specs in the hands of all, then the one percent is disempowered. IOW no long list of numerical specs – then suspect a scam. The one percent cannot sound the alarm.

An abridged list of specs that any responsible power supply manufacturer provides. If no numbers, then assume they are hiding something – missing essential functions:

Specification compliance: ATX 2.03 & ATX12V v1.1

Acoustics noise 25.8dBA typical at 70w, 30cm

Short circuit protection on all outputs

Over voltage protection

Over power protection

100% hi-pot test

100% burn in, high temperature cycled on/off

PFC harmonics compliance: EN61000-3-2 + A1 + A2

EMI/RFI compliance: CE, CISPR22 & FCC part 15 class B

Safety compliance: VDE, TUV, D, N, S, Fi, UL, C-UL & CB

Hold up time, full load: 16ms. typical

Efficiency; 100-120VAC and full range: >65%

Dielectric withstand, input to frame/ground: 1800VAC, 1sec.
Dielectric withstand, input to output: 1800VAC, 1sec.
Ripple/noise: 1%
MTBF, full load @ 25°C amb.: >100k hrs

How top dump power supplies into N America at higher profit? Forget to include essential functions. Then sell the power supply at \$25 or \$40 retail. A minimally acceptable power supply has a full retail price of \$65. Just another number that should create suspicion.

Concept does not stop with power supplies. Concept even works for cars. Pontiac is hyping performance. So why do they not provide both horsepower and liters on the sticker sheet? Because Pontiac engines remain some of the lowest performance in the industry. Even the greater noise suggests their low performance. Just another example why the manufacturer would hide the numbers. Do the horsepower per liter arithmetic yourself. Numerical facts that the manufacturer hopes you will not learn.

Your computer symptoms only say, "Time to collect facts". In your case, I would start with a 'usual' suspect – the power supply 'system'. Not just the power supply. System includes controller on motherboard. To understand the 'system', you need a tool as essential as a screwdriver – a 3.5 digit multimeter. Concepts to better understand why boot fails are delineated in: "Computer doesn't start at all" in alt.comp.hardware on 10 Jan 2004 at <http://tinyurl.com/2t69q>
"I think my power supply is dead" in alt.comp.hardware on 5 Feb 2004 at <http://www.tinyurl.com/2musa> .

Another poster here demonstrates how myths are promoted. He recommends a UPS to stop spikes and surges. Even the manufacturer does not make that claim. Will the relay inside a UPS that takes tens or milliseconds to respond stop a destructive spike that is completed in microseconds? Again, how numbers expose a myth – such as a plug-in UPS for hardware protection.

Everything needs a number, or at least a numerical relationship. Without numbers, then only speculation remains. Your motherboard supplier demonstrated classic speculation. Typically destructive power surge occurs about once every eight years – another number that varies regionally and locally. Many who don't know anything about electricity hype myths such as daily surges. They just 'feel' these surges must exist. If daily surges exist, then we were trooping to the hardware store everyday to replace destroyed electronics –

even 30 years ago.

Notice the need for numerical information. Compare that to what you provided AND what your supplier concluded. A more likely reason for your failure is infant mortality or a failing power supply. But without numbers, we can only speculate. Provided are how to get numbers. Even if you don't understand those numbers, still, those numbers make it possible for others to provide useful responses. No numbers means wild speculation – or maybe a scam. No numbers is why another poster recommended the plug-in UPS.

hrdo@myrealbox.com wrote:

- > *I'll follow up on your hint that the power supply*
- > *unit may be a cheap one lacking essential features.*
- > *[Any models recommended?]*
- >
- > *Otherwise, I think I was careful with static*
- > *electricity and in any event its effect would not*
- > *have taken a 4 week delay. Also the processor*
- > *survived.*
- >
- > *The problem was at first a wobbly boot: the*
- > *machine would start and stop within a few seconds,*
- > *fans still turning. To complete the boot, I pushed*
- > *reset. Then one day nothing, just the peace of*
- > *death.*