



Introduction

HIPER is a name better known in Europe than in the US, however their power supplies are available world-wide. Best known for the modular "Type-R" series, Hiper considers this their

The most unique feature of this power supply, in my opinion, is the style of modular connectors and the respective additional expansion cables. The mesh body also is somewhat unique and provides excellent ventilation for the power supply.

Packing, Accessories, Cable Configuration

The Hiper Type-R comes packaged in a reusable plastic toolbox. This sturdy packaging ensures that the power supply arrives undamaged, and is actually a decent size to fit plenty of tools, cables, CDs, and whatnot for fixing PCs. I have not seen any other PSU maker come close to developing a reusable packaging like this, most just come in a disposable cardboard



The Type-R comes with your standard power plug and specification manual (printed in several languages). The cabling system is quite unique and flexible in implementation. The main power cables connect to the power supply via 6 different keyed plugs. Additional cables can then be connected to the regular power plugs to expand the connections as necessary. It should be noted that all SATA connectors actually draw their power from the regular 4pin power connectors, so they do not have 3.3V power. All cables do have sleeving, which gives a nice look and also reduces clutter inside the case. The pins between the PSU chassis and power connectors are tin plated, but the connectors that go to the motherboard & peripherals are all gold plated.

Some connectors like the SATA utilize a 4pin pass-through for power so you can continue to use the 4pin, while others like the second PCIe connector consumes a pair of 4pin connectors (no pass-through). The total cable count is as follows:

- One (1) 24pin
- Main Power (20+4 style)
- One (1) 4pin
- ATX +12V
- Two (2) 6pin PCI Express
- Four (4) SATA
- One (1) 4pin Floppy
- Eight (8) 4pin Peripheral



Each of the connectors on the power supply has a different number of pins, which corresponds to the different cables provided. The main ATX connector is a detachable 20+4 pin design, allowing for backwards compatibility with older motherboards that only have a 20 pin connector. The main ATX connector cable is 17" long, the other cable lengths vary by what extension connectors are used.



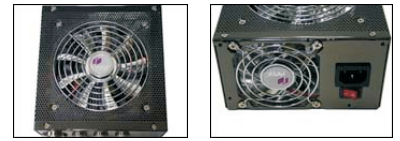
Exterior of the Hiper Type-R 580W:

One of the most visually noticeable features of the Type-R is the mesh body, which serves a functional purpose of allowing better ventilation and allowing the fans to operate at lower RPMs (thus producing less noise). The Type-R is available in various colors and finishes, our model happens to be a charcoal titanium finish.



The primary fan on the bottom is a 120mm, while the rear fan is an 80mm. The rear fan will stay on for a couple minutes after the PC is shut off to help prevent heat buildup inside the chassis, a feature not found on many

power supplies yet is very nice to see. The back of the PSU has a master power switch, which is always useful.



Interior of the Hiper Type-R 580W

For having so much hype around it, I was expecting a bit more from the internal design. However, its design is, more or less, what you would find in any typical power supply. The capacitors are rated for 105C, which is good (I've seen some PSUs use ones with a rating of only 85C). The heatsinks seem a little undersized compared to other PSUs I've examined, however sizing is somewhat determined by the efficiency and cooling of the power supply (the more efficient the PSU, the less heat generated, the smaller the heatsinks would need to be). There are two main chokes (one group regulation choke with windings for +5V, +12V and usually also -12V, and another choke for +3.3V) which is a pretty typical approach.

Unfortunately I couldn't remove the PCB from the chassis without having to cut some wires so I was unable to verify the 12V rails. However, from the 2nd picture it is pretty obvious that there are indeed two rails. The 2nd rail only has a single wire, which leads to the 4pin +12V connector. I am a *little* hesitant to see only a single 18 Gauge wire run between the PCB and connector (it is a short run though), the reason being is that running potentially up to 18A through that thin wire could cause problems. However, there have not been any reported problems with this PSU so I can't really say this would be a flaw, just a difference in opinion on design choice.

Also worth noting is that this power supply is NVIDIA SLI



How We Test Power Supplies:

In order to thoroughly test a power supply we have built a special rig that is capable of dynamic load levels on each rail. A short article covering our power supply testing methodology in detail can be found here. Please read over the guide if you haven't already, you might just learn a thing or two. Simply plugging a power supply into a regular PC for "testing" is not accurate by any means, nor can any useful numbers be extracted by testing that way.

Also worth reading is our power supply primer article titled, Powering Your PC: Truths and Misconceptions - A Guide To Power Supplies, which covers how power supplies work in great detail.

If you have read the power supply testing article, you know that we publish four (4) groups of numbers for each power supply to give a simplified overall representation that can be compared to other power supplies. Many other load ranges are tested (but not published unless there is a serious problem) to ensure voltage levels remain within ATX12V specifications. I like to refer to it as "working the switchboard" since it involves flipping lots of switches tied to resistors on each rail to achieve various loads. Unfortunately we can't always dial in exact maximum numbers because of the fixed levels of resistance, but load levels we test are often far in excess of any load a regular PC will create.

Load Test Results:

Loads are reported at 4 different levels (Low, Typical, Heavy, and Max), the numbers will vary slightly between power supplies because voltage levels have a direct effect on current going through the resistors. Ambient temperature (outside the case) would vary between 23.8-26.7°C (75-80°F), which was somewhat proportional to the load level being tested, however the main concern was keeping the internal temp below 50°C. All PC power supplies are "switching power supplies", so please keep in mind that voltage levels will always vary between PCs because loads are always different (and quite dynamic).

Things to consider:

1. Voltage Regulation (% above/below nominal)
2. Efficiency (particularly under a "typical" & "heavy" loads)
3. Safety (Does it shutdown under unsafe conditions?)

4. Maximum Real Power Output (does it meet rated output?)

Two potential reasons a power supply did not meet its rated maximum power output:

1. Voltage exceeded maximum tolerances
2. PSU shutdown (overheat or overload conditions.)

	Load	PF	3.3V	5V	12V1	12V2	Effic.	Case
	100W	60	3.39 (3%)	5.22 (5%)	12.20 (3%)	12.25 (2%)	77.4%	21.2°C
Hiper Type-R 580W	247W	61	3.35 (2%)	5.12 (3%)	12.20 (2%)	12.06 (1%)	80.9%	31.2°C
Rated: 550W	400W	61	3.25 (-2%)	5.08 (2%)	12.09 (1%)	11.95 (-1%)	78.1%	38.3°C
PF: None	562W	60	3.20 (-3%)	4.97 (-1%)	11.98 (-1%)	11.87 (-1%)	74.8%	42.2°C
ATX: 2.2								

Note: Maximum tested load (red background) may not always be the maximum PSU output rating (mentioned as reason #4 above). Also, we try to get as close as possible to the maximum rated output, but the design of the load testing device only works in incremental numbers (so it can be a little above or below).

To see how this power supply compares against other PSUs, please visit our compiled results page.

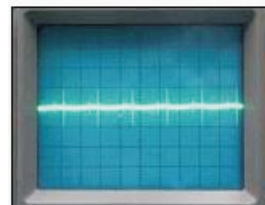
AC Ripple Test Results

Using a Tektronix 2215 Oscilloscope, we check for AC ripple that is present in the DC power. We only checked the +3.3V, 5V, +12V1, and +12V2 rails (not the -12V or 5Vsb). Potential frequencies could be in the 60Hz range (which is what the AC line power is in the US), or in the higher KHz range closer to the PSU's switching frequency. The guideline tolerance is 50mV p-p on the +3.3V & 5V rails, and 120mV p-p on the +12V1 & +12V2 rails.

An interesting thing to note, in the Hiper Type-R manual, they specify different ripple tolerances than what is listed in the ATX guidelines. Hiper lists 70mV on the +3.3V p-p, 100mV p-p on the +5V, and 120mV p-p on the +12V1 & +12V2 rails.

ATX 12V v2.x Noise/Ripple Tolerance		
Voltage Rail	Light Load	Medium Load
+3.3V	40mV p-p	30mV p-p
+5V	20mV p-p	40mV p-p
+12V1	40mV p-p	50mV p-p
+12V2	50mV p-p	60mV p-p

I've had someone ask me before what the scope actually looks like, so below is a sample picture I took. The scale is set to 20mV/div (I don't remember the time division). Ripple is measured from Peak-to-Peak, so in the picture the "spikes" go one division up and one division down, and at 20mV per division that would mean 40mV p-p. Care must be taken when measuring ripple, an improper setup can lead to erroneous results.



Comments:

- The -12V rail was generally always high and typically around 10% tolerance (nearly exceeding maximum allowed).
- All voltages stayed within acceptable tolerances.
- Good Efficiency, ~78-80% under typical loads.
- 12V Rails loaded each to ~18A, voltages still stayed within 2% of tolerance.
- Verified peak load rating of 630W.
- Both fans were very quiet, even under heavy load.

Hiper Type-R 580W Modular Power Supply

Company: [High performance Group](#)

Product: HPU-4K580

For further information please visit:

<http://www.hipergroup.com>

This review was reviewed by [Extremeoverclocking](#).



Ref:

http://www.extremeoverclocking.com/reviews/cases/Hiper_TypeR_580W_1.html