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Program Development, Inc.
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763-479-3099 (voice/tape & FAX) PRIMARY BUSINESS LINE
763-479-6929 (voice for now--voice/tape & FAX when ISDN works right)
763-479-6248 (ISDN & voice)

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If you are receiving this e-mail attachment, you have indicated an interest in purchasing an Addtronics, Chenbro, or Lite-On computer case, or some case-related accessory, by e-mail. Those of you who have gotten it previously will not necessarily find much new product in it, but do look for price adjustments.

I am starting to incorporate much more information in the running commentary about recommended configurations, possible case modifications, and case cooling rationale/theory (my approach isn't rocket science; it's based on testbench experience here and my own work on my own cases.)

If you read the commentary and think about what your needs are in a high-quality, high performance case, you will probably find enough information here to e-mail me with a proposed configuration and possibly even consider it an order. I will be happy to review it with you, make any recommendations I think you should consider, and work up a quote for you. This can then become an order as soon as you ok it.

I realize this approach is not exactly the latest e-commerce "one-button" buying, but I really am as interested in providing service and advice to ensure you're getting what you want, need, or can afford as I am in maximizing my volume or profit potential.

So, dig in--print this if you want to study at a table--and e-mail me with your proposed orders.

Jim H.
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THE REST OF THIS PAGE IS LEFT BLANK FOR FUTURE TOC EXPANSION

USING THIS CATALOG

1. If you are new to this part of the hardware geek world, I suggest you print the catalog and read through it. The running commentary should introduce you to the a priori assumptions I make about this hardware category, and what I have done to develop products for a buyer that is powerful, quiet, and long-lasting.

Above all, I want it known that you should be free to ask questions: the only dumb question is the unasked one. As the site develops, look for an FAQ link that will allow you to do research for questions you may have.

2. If you know what you want and are experienced, feel free to locate the items you want, sort out any related issues, and e-mail it in.

GETTING A QUOTE OR PLACING AN ORDER

To expedite an inquiry/specification/order, please do the following:

1. COPY the form below into your email. Be sure to provide your full name, your actual e-mail address, and at least the ZIP so I can provide a complete response the first time.

2. Include what questions you know to ask now--IOW, tell me if you want modifications, if you have a particular budget in mind, your criteria for a case, or anything else you want to know. Here's the QUOTE form - note that it is a sample GENIE QUOTE. The format is the same for any case

QUOTE FOR: REAL NAME
ADDRESS LINE ONE
ADDRESS LINE TWO
CITY ST 98104

e-mail address
telephone one

(QTY. CASE/PS	CAT.PRICE	SPECIFICATION/COMMENTS--FOR JFH TO INSERT)
1 - GENIE/E330	\$185.00	(case, Enermax 330w. 'FM' PS, one P90FBK-M HD exhaust fan, one P120L1A/4 LF fan, Chenbro parts kit, coolcases.com finishing kit)
C/M factory fan	-4.00	(delete the factory fan)
MODIFICATIONS		
1 - Basic Mods	22.50	(removable top, PS floor slots, remove LCH/ install 120FG, optional caster drill)
3 - Grommet Mounts	9.00	(install grommets on factory fan mounts)
FANS		
HD: 1-P90L1A/4	14.00	(install a P90L1A/4 in the HD exh.)
LF: 1-P120L1A/4	incl.	
BBd: 1-P120L1A/4/FG	18.50	(install a P120L1A/4 in the backboard exh., complete with a 120 finger guard.)
CABLES		
1 - 20" Floppy/sgl.	2.00	
2 - 24" IDE-33/dual	5.00	(long enough for good interior detailing)
1 - 24" ATA-66/100-dual	7.50	
ACCESSORIES		
1 - Std. Casters/c	9.00	(just roll the case out)
2 - ATX extension cables	6.00	(no disconnects for rolling the case out)
1 - SVGA extension cable	7.00	(heavy duty/grounded--)

TOTAL: \$281.50 SELL: \$267.00 (package discounts vary)
SHIPPING: 42 lbs. UPS ground to 98104/res: 19.00

COMMENTS ON USING THE FORM:

1. DO NOT WORRY ABOUT FILLING IN THE SPECIFICATIONS--I will do that, or provide explanatory comments when I respond.
2. If you haven't figured out abbreviations I use, just tell me in your own words. For example, under MODIFICATIONS, say this: "no BASIC mods, but supply me with screws and the FG so I can do my own." Or, under fans, say this: "replace the HD exhaust factory fan with a Panaflo 90 L1A fan." Or, under accessories, say "I want the casters, but I don't want the extension cables."

YOU CAN ORDER A CASE ANY WAY YOU WANT, WITH OR WITHOUT A PS, WITH OR WITHOUT FANS, ACCESSORIES, or any other product.

As many of you know, I at the time of this writing I have not exactly been prompt in answering e-mail. While there were unexpected problems that recently contributed to my delayed responses, the other issue is that the e-mail process is a bit lengthy for the volume of interest generated. In other words, I have a lot more interest in buying from coolcases.com than I did a year ago, but there are still only 24 hours in a day. The more complete we can be in each exchange, the quicker we can do this.

PLACING THE ORDER:

Once we have the quote complete, it is changed to an ORDER simply by COPYING it into a final version called an order, and appending the ordering instructions to it. BE SURE YOU HAVE COMPLETE INSERTING THE COMPLETE PERSONAL INFORMATION--ALL THE ADDRESS INFORMATION AND A TELEPHONE NUMBER. FYI, the paragraphs below are the boilerplate text I insert following that writeup.

Here's the ordering procedure--for payment by PayPal.com OR PayPlace.com, use this e-mail address: jfhanson@hansonslan.org (The address info is the same as here.) If you COPY the order above and PASTE it into the PayPal Memo field, it will save me much time in doing the invoice and shipping.

For payment by snail-mail the check or MO should be made out to "Program Development, Inc." and, along with a copy of this e-mail, be mailed to

Program Development, Inc.
att'n: coolcases.com
5815 West Main Street
Maple Plain, MN 55359

BE SURE TO PUT YOUR NAME AND ADDRESS ON THE E-MAIL COPY, AND PLEASE INCLUDE A TELEPHONE NUMBER. If you wish to send by overnight or by priority, please request NO signature; I live in a safe neighborhood and it will just delay delivery. (FYI, MOs are given first priority in the next shipment pickup.)

Let me know when you put it in snail mail and I'll watch for it. I think shipping will take about _____ days, maybe ____, and I usually ship within 48, maybe 72 hours of receipt of the payment. Thanks again--any questions don't hesitate to e-mail, _____

Jim H.

You will get an e-mail response from me when I receive the ORDER e-mail back from you, and you will get an e-mail when the case is shipped. Always feel free to e-mail to inquire about your order.

CASES

ADDTRONICS For Addtronics information, see the site <http://www.addtronics.com> for details until coolcases.com content is up. (NOTE: the Addtronics web site is confusing in its use and sometimes inaccurate in its descriptions. Be sure to e-mail me for current information on configurations and availability.)

The general quality and performance of the Addtronics cases is well-known by now, so I won't go over that. Here are some other characteristics of these cases.

1. In their standard form and the right fans installed, they will handle any system you want to build in them. An economical setup is easy to build using factory fans, but with some noise involved and questionable fan life.
2. All of them except for the 3890 are big enough to provide real ease of installation and good airflow.
3. They are probably the easiest/fastest case to get into, but the thumbscrew / screwless setup is a bit of marketing hype.
4. The "fan cage" feature is generally a detriment--the factory chassis grills are somewhat obstructive, and the cages themselves certainly are. Noticable increases in quietness and airflow will be obtained by grill removal (punches)and/or direct mounting techniques.
4. In a well-configured case, fans in the drive column are usually not needed, but ALWAYS INSTALL A BACKBOARD EXHAUST FAN. With the rapid increases in heatsink fan and cooling ability, the CPU fan bracket fan is probably not as important as it once was, although its adjustable mounting allows
5. The cases themselves are very amenable to hotrodding--it is now possible to build up an x896 series case with a total airflow approaching 300 cfm.

x896 MODIFICATIONS.

Modifications that are good payoffs initially include direct mounting (with or without punching) and using grommets. A VERY good modification to include is to punch out the HD 80 lower front intake fan with a 90 punch and install a 90 there. That will noticably increase the airflow in the lower section as well as increase cooling capability. In order of benefit and value, here's a list of Modifications for the x896-series cases.

1. Lower Front Panaflo 120 Fan installation. To install a P120 in the lower front, mounting holes have to be drilled, the factory LCH/Fan Cage abandoned, and a 120 Fan Guard installed. Since you are drilling the holes, you might as well install grommets. Total cost increase is about \$21.50.
2. Grommet installations at all needed mounts--the lower front (LF) 120, LF HD80, above-PS (APS) 80, the backboard (BBd) 60 or 90--\$3.00 ea, \$12.00 total.
3. Upgrade the LF HD80 intake to a 90--punch out the factory grill, drill 90 mtg. holes and install grommets, and install a 90 c/w 90 finger guard. Total cost with an A90 fan is about \$19.00.
4. Punch out the LF 120, drill mounting holes and install grommets and a 120 FG. Total cost for mods, \$13.00
5. Punch all four factory chassis grills out and drill mounting holes as needed.
6. Cut out the vent in the floor in the Upper Back 5.25 HD mount and install a TT-900 there. The TT-900 is an exhaust-only dual 90 fan package in a 5.25 form factor box; it has an exhaust grill on the front, and twin 90 intakes on the bottom. Here's a link to a review of it:

W8500 (WATX 8500)

THE FIRST WTX CASE READILY AVAILABLE. Reviews show extraordinarily good cooling; see the Anandtech.com review. Addtronics is using their standard PS with long leads; I will be buying it only with Addtronics/Antec 300w PS, but you can choose another PS. Motherboard cable extensions are available so any PSs can work with it, not just the ones I sell--the long-lead Y300, A300, or E350.

The factory pack includes an ABS cable bustle for the back and the Luxury Casters. The case comes with one OEM-type 90 fan in front and one 80 fan in back. For now, I recommend a second 90 in front, a second 80 in back, and possibly an 80 in the upper left cage. For least noise, use the Panaflo L1As. You also need long data cables on this case if you are going to detail it for clean air flow.

SIZE: 21.5" actual case height, 12.4" wide x 21.25" deep.; Height and width overall on the included luxury casters is 24.6" and 14" at maximum swivel.

DRIVES - exposed: one - 3.5; five - 5.25; hidden: five - 3.5

FANS - lower front: three 92 mm. mounts, two 80 mm. mounts,
upper left side: one 80 mm. mount.

lower back: four 80 mm. mounts.

W8500/NONE	Case,two factory fans, Luxury Casters, case cable bustle, Add. parts kit	\$220.00
W8500/Y300	YaHsin 300w ATX PS, two factory fans	250.00
W8500/A300xl,	Add. 300 PS w/long leads, two factory fans	260.00

The WTX8500 is the only case I know of that is sold in an ATX form and may be readily converted to the WTX standard. As such, this case could well be the longest-lived piece of equipment you will buy. However, I consider it somewhat overpriced at its current level.

MODIFICATIONS The structure of the case and its performance as an ATX case really preclude needing much modification. The greatest cost benefit comes from the efforts to make the case quieter, IMHO.

Detailing the interior is hard, simply because it is 'one big box' with almost no chassis members to tie off to. Extra cable ties are included in the finishing kit. If you want to good interior detailing, you will want longer data cables--24" floppy, 24" IDE and 24" ATA-66/100 cables.

- RECOMMENDED UPGRADES:
1. Panaflo fans
 2. grommet mounting.
 3. Chassis grill punches

RECOMMENDED PACKAGE:	1 - W8500/A300xl	\$260.00
	c/m ffans:	-7.00
	MODS	
	7 - grmt mtg	21.00
	FANS	
	LF: 2-P90L1A/4	28.00
	UL: 1-P80L1A/4	9.00
	LB: 2-P80L1A/4/FG	21.00
	DATA CABLES	
	1 - 24" floppy/dual	2.50
	2 - 24" IDE-33/dual	5.00
	1 - 24" ATA-66/100	7.50
	ACCESSORIES	
	Luxury Casters	incl.
	Back Bustle	incl.
	2 - ATX extensions	5.00
	1 - SVGA extension	7.00

TOTAL:	<u>\$359.00</u>	SELL	\$341.00
SHIPPING:	54 lbs. UPS ground Oversized...		

7896-80
7896-120-90 (ET7896A)

This case is "the OEM version of the Supermicro 750-760." There may be argument about which version is case or model is best, but the Addtronics version has a noticeably superior lower front intake setup.

Note that there have been at least two versions (and two variants in each version) of this case. The original version, variant one (no longer available) had a three 80 fan cages in a straight line in the lower front; the second variant had the upper left lower front fan offset to the left, directly in front of the HD internal hanger. I call this version the 7896-80. I still have a few of the 7896-80s left, and it is this version that will be the quietest setup when equipped with P80L1As.

The second version began with the new lower front 120 fan mount and the upper back venting in the case back and in the floor under the 5.25 HD mount up there. Addtronics began manufacturing this case with a 60 backboard fan mount, then made a running change to a backboard with a 90 mount. I now have only the latter version, what I call the 7896-120-90.

The case is one of the best coolers out there, particularly so when properly configured with fans. Further, it is big enough to meet the needs of almost any buyer, but its internal HD hangers are a bit limited. Although it comes equipped with one 2HD hanger, if you plan on two or more 3.5" HDs, ALWAYS GET THE 3HD HANGER--that will allow space between two HDs for good ventilation. 3HD hangers may not always be in stock, so buy them when you can.

SIZE: 26.3" actual case height, 8.5" wide x 17.7" deep.;

Caster Height: standard casters, about 28.5"; luxury casters, about 29.5"

Luxury Casters require an installation width of 14" at maximum swivel.

DRIVES - exposed: one - 3.5; six - 5.25; hidden: two - 3.5 standard, one 5.25, and room for another 2 or 3 on a second HD hanger.

FANS MOUNTS - lower front: one 120x25 fan mounted in LCH/fan cage,
one 80 cage at HD hanger.

5.25 drive column: two 80 mm. fan cage on each side.

Above PS: one 80 mm. fan cage

Backboard: on 7896-80, 60mm; on 7896-120-90, 90 mm. direct.

CPU fan bracket: one 80 mm. direct mount.

In other words, a total of ten mounts on the 7896-80, and nine on the 7896-120.

BASE PRICING

7896-120/NONE	(case, one 120x25 factory fan, NO PS)	\$124.00
7896-120/A300	(case, one 120x25 factory fan, Addtronics/Antec PS)	\$154.00

PS Upgrade costs: E330FM, \$18.00; SPI 350, \$37.00; E430FM, \$64.00.

MODIFICATIONS

Modifications make it possible to setup a 7896 as a well-cooled but extremely quiet system on up to a real hotrod. Here's that list of modifications again in order of benefit and value:

1. Lower Front Panaflo 120 Fan installation. To install a P120 in the lower front, mounting holes have to be drilled, the factory LCH/Fan Cage abandoned, and a 120 Fan Guard installed. Since you are drilling the holes, you might as well install grommets. Total cost increase is about \$21.50.

2. Grommet installations at all needed mounts--the lower front (LF) 120, LF HD80, above-PS (APS) 80, the backboard (BBd) 60 or 90--\$3.00 ea, \$12.00 total.

3. Upgrade the LF HD80 intake to a 90--punch out the factory grill, drill 90 mtg. holes

and install grommets, and install a 90 C/W 90 finger guard. Total cost with all 120 fan is about \$19.00.

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x896-MODIFICATIONS, cont'd.

4. Punch out the LF 120, drill mounting holes and install grommets and a 120 FG.
Total cost for mods, \$13.00

5. Punch all four factory chassis grills out and drill mounting holes as needed.

6. Cut out the vent in the floor in the Upper Back 5.25 HD mount and install a TT-900 there. The TT-900 is an exhaust-only dual 90 fan package in a 5.25 form factor box; it has an exhaust grill on the front, and twin 90 intakes on the bottom. Here's a link to a review of it:

<http://www.thetechzone.com/reviews/cooler/justcooler/index.htm>

7. 90 mounting holes, with or without grommets on the 5.25 drive column.

8. a second 120 punch in the lower front to replace the HD80 standard or HD90 optional punch, and installation of a second 120x25 fan.

9. Blowholes on the left side or elsewhere. Generally, these are NOT recommended since the case simply doesn't need it.

Note that these mods start to overlap and vary the mods listed in first three or four, so I ceased showing costs for them--it depends on the the final configuraton of the whole package.

It is relatively easy to do good detailing with standard data cables on this chassis. If the motherboard connectors are in the typical ATX right front location, simply bend the cables over in ninty or forty-five bends to lay them flat against the right side of the case, and run them up the right side on top of one another. The floppy is on the bottom, so to speak, and runs all the way to the top. Next come the cables for the 5.25 drive bays, and finally the HD cables going to the internal HD hanger(s). They are tied down flat and, with some careful bending and creasing, they will be complete flat against the right side, simply branching out to reach the device connector.

RECOMMENDED CONFIGURATONS: Because there are endless variants for a customer's case setup, I will simply list a "middle of the road" one--the basic Panaflo setup.

1 - 7896-120-90/A300	\$154.00	(case, Addtronics/Antec 303x PS, one 120x25 Evercool fan, 5.25>3.5 adapter, CPU fan bracket, 2HD hanger, Addtronics parts box, coolcases.com finishing kit)
c/m FFan	-5.00	remove the factory fan, abandon fan cage)
MODIFICATIONS:		
LF: D120, D80	10.00	(drill 80 and 120 mtg holes for direct fan mtg)
3 - grommet mts	9.00	(install grommets in LF120, HD80, BBd 90)
FANS:		
LF: 1-P120L1A/4/FG	18.50	(pay UNtailed price, get FG disc.)
HD: 1-P80L1A/4/FG	10.50	(on spec., and FG disc.)
BBd: 1-P90L1A/4FG	16.00	
DATA CABLES:		
1 -24" floppy	2.50	
1 -24" IDE-33/dual	2.50	
1 -24" ATA66-100/dual	7.50	
ACCESSORIES:		
1 - 3HD hanger:	7.00	
TOTAL:	\$ 232.50	SELL: \$232.00 plus shipping--
SHIPPING: 42 lbs.		

COMMENT: This setup will give you about 93 cfm in and about 70 cfm out, thus providing positive pressure for a clean case. It is VERY quiet.

6896-80, 6896-120-60, 6896-120-90 (ET6896A)

Addtronics calls this case size a "fulltower", but it might be best to consider it a 'taller' midtower. Its design is identical to the 7896 with the exception of three less 5.25 bays. The versions and variants are identical to the 7896 cases. It has the full-sized bottom end of the 7896, an identical intake system, and one less possible fan mount in the back--there is no space for that 'above PS' 80 found on the 7896.

If you build lightly-resourced systems and want an excellent case for on-the-floor setup, this case has the best ergonomics. The same comments about performance potential apply here, with the following caveat: The 6896-80 will probably be the quietest roomy case you can build when you use Panaflo L1A fans. This version and this setup is the one I recommend for musicians.

SIZE: 20.3" actual case height, 8.5" wide x 17.7" deep.; Height overall on standard casters is about 22.5" and on luxury casters, about 23.5" with a width of 14" at maximum swivel.

DRIVES - exposed: one - 3.5; three - 5.25; hidden: two - 3.5 standard, one 5.25, and room for another 2 or 3 on a second HD hanger.

FANS MOUNTS - lower front: one 120x25 fan mounted in LCH/fan cage,
one 80 cage at HD hanger.

5.25 drive column: one 80 mm. fan cage on each side.

Backboard: on 6896-80, 60mm; on 6896-120, 60 or 90 mm. direct.

CPU fan bracket: one 80 mm. direct mount.

In other words, a total of seven mounts on the 6896-80, and six on the 6896-120.

The 6896-80 and the 6896-120-60 were shipped to me with NO cpu fan bracket fan, and the 6896-120-90 comes with one.

BASE PRICING

6896-80/NONE:	case, NO PS, one A80 fan, 2HD hanger	SPECIAL: \$ 78.00
6896-80/A300:	case, Addtronics/Antec 303x PS, etc.	SPECIAL: \$108.00
6896-120-60/A300	case, A300 PS, one 120x25 fan, etc.	\$124.00
6896-120-90/E330FM	case, Enermax 330w PS, etc., etc.	\$145.00

PS Upgrade costs: E330FM, \$21.00; SPI 350, \$37.00; E430FM, \$64.00.

MODIFICATIONS

Modifications make it possible to setup a 6896 as a well-cooled but extremely quiet system on up to a real hotrod. Here's that list of modifications again in order of benefit and value as it applied to the 6896 series.

1. Lower Front Panaflo 120 Fan installation. To install a P120 in the lower front, mounting holes have to be drilled, the factory LCH/Fan Cage abandoned, and a 120 Fan Guard installed. Since you are drilling the holes, you might as well install grommets. Total cost increase is about \$21.50.

2. Grommet installations at all needed mounts--the lower front (LF) 120, LF HD80, above-PS (APS) 80, the backboard (BBd) 60 or 90--\$3.00 ea, \$12.00 total.

3. Upgrade the LF HD80 intake to a 90--punch out the factory grill, drill 90 mtg. holes and install grommets, and install a 90 c/w 90 finger guard. Total cost with an A90 fan is about \$19.00.

4. Punch out the LF 120, drill mounting holes and install grommets and a 120 FG. Total cost for mods, \$13.00

5. Punch all four factory chassis grills out and drill mounting holes as needed.

6896-MODIFICATIONS, cont'd.

6. Cut out the vent in the floor in the Upper Back 5.25 HD mount and install a TT-900 there. The TT-900 is an exhaust-only dual 90 fan package in a 5.25 form factor box; it has an exhaust grill on the front, and twin 90 intakes on the bottom. Here's a link to a review of it:

<http://www.thetechzone.com/reviews/cooler/justcooler/index.htm>

7. 90 mounting holes, with or without grommets, on the 5.25 drive column.

8. a second 120 punch in the lower front to replace the HD80 standard or HD90 optional punch, and installation of a second 120x25 fan.

9. Blowholes on the left side or elsewhere. Generally, these are NOT recommended since the case simply doesn't need it.

Note that these mods start to overlap and vary the mods listed in first three or four, so I ceased showing costs for them--it depends on the the final configuraton of the whole package.

It is relatively easy to do good detailing with standard data cables on this chassis. If the motherboard connectors are in the typical ATX right front location, simply bend the cables over in ninty or forty-five bends to lay them flat against the right side of the case, and run them up the right side on top of one another. The floppy is on the bottom, so to speak, and runs all the way to the top. Next come the cables for the 5.25 drive bays, and finally the HD cables going to the internal HD hanger(s). They are tied down flat and, with some careful bending and creasing, they will be complete flat against the right side, simply branching out to reach the device connector.

RECOMMENDED CONFIGURATONS: Because there are endless variants for a customer's case setup, Listed are a basic package with recommended fans, and a "middle of the road" one--the basic Panaflo setup.

CONFIG ONE: BASIC 6896-80 with A80 fans, S60 Bbd exhaust

1 - 6896-80/A300 \$108.00 (case, Addtronics/Antec 303x PS, one A80 fan, 5.25>3.5 adapter, 2HD hanger, Addtronics parts box, coolcases.com finishing kit)

MODIFICATIONS none

FANS

LF: one A80 4.00 (add a second factory fan to the lower front)

HD: one A80 incl.

BBd: 1-S60/4 8.00 (no FG needed for safety, but watch wires)

DATA CABLES:

1 -24" floppy 2.50

1 -24" IDE-33/dual 2.50

1 -24" ATA66-100/dual 7.50

ACCESSORIES:

1 - 3HD hanger: 7.00

TOTAL: \$ 143.50 SELL: \$143.50

SHIPPING: 37 lbs.

COMMENT: This setup will give you about 70 cfm in and 40+ cfm out, providing positive pressure for a clean case. It is not particularly quiet, but neither will it be particularly noisy.

6896 cases, cont'd.
RECOMMENDED CONFIGURATIONS, cont'd.

CONFIG TWO: 6896-120-90 std. Panaflo setup

1 - 6896-120-90/A300	\$124.00	(case, Addtronics/Antec 303x PS, one 120x25 Evercool fan, 5.25>3.5 adapter, CPU fan bracket, 2HD hanger, Addtronics parts box, coolcases.com finishing kit)
c/m FFan	-5.00	remove the factory fan, abandon fan cage)
MODIFICATIONS:		
LF: D120, D80	10.00	(drill 80 and 120 mtg holes for direct fan mtg)
3 - grommet mts	9.00	(install grommets in LF120, HD80, BBd 90)
FANS:		
LF: 1-P120L1A/4/FG	18.50	(pay UNTailed price, get FG disc.)
HD: 1-P80L1A/4/FG	10.50	(on spec., and FG disc.)
BBd: 1-P90L1A/4FG	16.00	
DATA CABLES:		
1 -24" floppy	2.50	
1 -24" IDE-33/dual	2.50	
1 -24" ATA66-100/dual	7.50	
ACCESSORIES	none	
TOTAL:	\$ 195.50	SELL \$195.50
SHIPPING: 42 lbs.		

COMMENT: This setup will give you about 93 cfm in and about 70 cfm out, thus providing positive pressure for a clean case. It is VERY quiet.

389x (ET3890A, ET3891A)

The 389x is Addtronics' Midtower case. (There is no difference between the 3890 and the 3891 except for the bezel.) Made to the same standards and with the same general features as the x896 series cases, it is an excellent basic workstation case. Wider than the x896 series cases, it achieves its shorter height by use of a 'pass by' design for the motherboard. Although a tight fit, there is room for a slotket installation with a compact sink and fan.

There are two 80 mm. intake fan mounts, one in the lower front and another on the right side of the 5.25 drive column. While there is no backboard exhaust, the location of the a socket CPU sink and fan is immediately adjacent to the PS intake grilles, and the case cools very well when equipped with an Enermax PS.

SIZE: 16.3" actual case height, 8.5" wide x 17.3" deep.
DRIVES - exposed: two - 3.5; three - 5.25; hidden: two - 3.5 standard, in a 2HD hanger mounted by the slots.
FANS MOUNTS - lower front: one 80 mm. fan cage
5.25 drive column: one 80 mm. fan cage on right side.

BASE PRICING

389x/A250	case, 250w. PS, one A80 fan, Add.parts	\$ 74.00
389x/A300	case, Addtronics/Antec 303x PS, etc.	\$ 87.00
389x/E330FM	case, Enermax 330w. FM PS, one A80 fan, etc.	\$108.00

MODIFICATIONS

This case can be made into a real midtower hot rod: 90 or 120 mm lower front intake, one or two 60 mm backboard exhausts, and you still have the drive column fan cage for more cooling--and all in an nice-sized midtower that doesn't overpower the desktop. However, greater cost/performance efficiency is found in the Chenbro JUNIOR--at a cost of access convenience and some construction quality

x890 CASES (ET6890A, ET7890A)

The Addtronics 7890 and 6890 were Addtronics' first generation of these two chassis sizes. Initially, a buyer gets the impression that the 'only' real difference between the the x890 cases and the x896 cases is that the x890 chassis has an important advantage: an additional 5.25 external drive bay. Some years ago, when the only HDs were 5.25s, or when the only way to cool HDs was with HD coolers with 40 mm. fans, that might have been true.

That extra 5.25 external bay thus becomes a liability save for unusual circumstances for a special configuration. That external bay benefit really comes at a significant cost--the intrusion of that bottom 5.25 bay into the lower section of the case. Because of that intrusion, there can be no internal hanger mount for HDs at the front of the case, and no intake fan mounted directly in front of it. That cuts the potential space for internal HDs by half.

Further, it limits the intake system to two 80 mm fans, thus forcing use of higher cfm/noiser fans unless system cooling needs are minimal. And, with only the one hanger mount available adjacent to the CPU location, there can be conflict between larger CPU 'sinks and fans and the HDs.

For these reasons and others, the 7890 is available by special order only. I will keep on hand a couple of 6890s for those special needs of a customer, but I do not routinely recommend either case now. When one weighs the advantages and disadvantages overall of the x890 and the x896, the x896 series is a far better package.

SIZE: Same as the 7896 and 6896 cases.

BASE PRICING:

7890/A300 case, Addtronics 300w. PS, one A80 fan, one 2HD hanger \$ 140.00
6890/A250 case, Addtronics 250w. PS, one A80 fan, one 2HD hanger \$ 105.00

MODIFICATIONS:

Many of the options for x896 cases can be applied to the x890 cases, but without the greater improvement benefits. The molded-in intake grills of the x890 cases constrict the air flow to a greater degree than do the pinhole-perforated grills of the x896 cases.

ADDTRONICS CASE ACCESSORIES & PARTS

Int.3.5" 2-HD Bracket	fits all cases exc. W8500	\$5.00
Int.3.5" 3-HD Bracket	fits all cases " "	7.00
Int.CPU Fan Bracket	fits all cases exc. W8500	7.00
Standard Casters	for 689x, 789x	7.00
Deluxe Casters	for 689x, 789x	15.00
Fan Cage--1"	fits all cases exc. W8500	1.00
Fan Cage/LCH	lower section; w/ long card slots	1.00
ET3891 Bezel	389x chassis only	15.00

LITE-ON cases

FS020 The FS020 was actually the first "120 superstation" case geeks found--in the late winter of 1999. The case is of the "single compartment variety," and has three 120mm fan cages and mounts. The metal finish and quality of construction has been simply the best I have seen on any case to date.

Designed for negative pressure--the fans are set up as two 120 exhausts and one 120 intake--, the case also has two other intake locations: on the lower right side at the front edge and on the upper left at the front edge. Bench testing and daily use here (this case recently was recently set up with a K7 RAID system as my personal workstation) confirms that Lite-On did its homework: With the T-Bird 750 overclocked to about 860 but only equipped with an suppliers' OEM-type sink and fan for a K7, idle temperatures are about seven degrees F over ambient with two P120L1A fans installed.

It isn't perfect--it has an arcane access procedure, but there is now a filter in the lower front. Fortunately, the access procedure can be worked around, and the thin stick-on pads formerly supplied for feet have been replaced with small round feet. (Some of you reading this may consider this a different opinion than I have previously held--actually, I think my own evaluation protocol was getting biased due to my frustration with the costing negotiations with the company.)

The factory supplied configuration is with one 120 mm. factory fan (Nidec TA-450DC, model A34341-58--71 cfm., 38.7 dBA) in the lower front and with the Lite-On 300w. PS.

SIZE: 21" High by 9.4" Wide by 18" Deep.

DRIVES - exposed: two - 3.5; four - 5.25; hidden: five - 3.5 (two in the upper back 2HD hanger and three in the lower front 3.5 drive cage.

FAN MOUNTS - lower front: one 120x25 fan cage in LCH/fan cage/spkr. mount.

Upper Backboard: one N120x25/3/FG--see specs above.

Lower Backboard: one 120x25 mount, blanked off from the factory.

BASE PRICING

FS020/NONE case, NO PS, NO ffan \$134.00

FS020/BASIC case, Lite-On 300w. PS, one N120fan \$159.00

PS Upgrade costs: E330FM, \$26.00; SPI 350, \$43.00; E430FM, \$64.00.

MODIFICATIONS: For any number of reasons, the modifications I have sorted out to this case are limited. First, it simply doesn't need a lot done to perform extremely well--the factory testing paid off. so far, the recommended modifications are

1. Grommet Installation at all three mounting locations.
2. Lower front 120 punch. Installing a P120L1A is best done with direct mounting, and the lower front chassis grill is noticeably obstructive.
3. Backboard fan punches. For the same reasons.
4. The standard casters drop right in to the existing mounting holes.

Other mods that can be done include more punches--the lower front has room for a 120 and 2 80s, plus an 80 in front of the HD mounts below the floppies. The chassis back has room for one 90, one 80 and a 60, or two 60s right beside the slots.

FS020, cont'd.

RECOMMENDED CONFIGURATION

1 - FS020/E330:	\$ 185.00	(case, Enermax 330w. 'FM' PS, one factory fan, 2HD hanger, remov. 3.5 cage, front filter, Lite-On parts kit, coolcases finishing kit.)
c/m ffan & cage	-6.00	(remove the factory fan and fan cage/spkr)
MODIFICATIONS:		
LF: P120	10.00	(punch a 120 lower front intake)
3 - grommet mounts	9.00	(install grommets on all three fan mounts)
FANS:		
LF: 1-P120L1A/4/FG:	18.50	(Panaflo 120 complete with 120FG)
UB: 1-P120L1A/4	16.00	(Panaflo 120 complete with factory 120FG)
DATA CABLES		
1 - 20" floppy/single	2.50	
2 - 24" IDE-33	5.00	
1 - 24" ATA-66/100-dual	7.50	
ACCESSORIES		
1 - Std. Casters/C	9.00	(casters complete with washers and nuts)
TOTAL:	<u>\$ 256.50</u>	SELL \$249.00
SHIPPING: 44 lbs.		

COMMENT: A truly excellent setup--it is sitting next to me right now.

Less you get scared off by this pricing, here's a reminder that

1. You can buy any case any way you want to--with or without PS, fans, Mods, cables, or accessories.
2. A factory setup with two fans would only be about \$ 171.50 plus any cables and the casters.

Lite-On 850

SURPRISE: A new case will be added to the line-up in the next few weeks!

The 850 is the OEM case for the PC Power & Cooling Economy Midtower. A standard midtower design, it is my first venture into the lower-priced standard case market.

Size: About 7.5" w by 18" tall by 16" deep.

Drives - external: three 5.25 and two 3.5
 internal: three 3.5s

Fan Mounts - lower front: one 80, direct mount
 backboard: one 80, direct mount

We will set it up and have it prepackaged for sale, needing only to drop in the finishing kit envelope and invoice. While final pricing has not been set, the intitial configuration should be with a Lite-On 300w. PS and two A80 fans.

FIRST CONFIGURATION

850/L300-std:	est'd. \$65.00	(case, Lite-On 300w PS, A80 lower front fan, A80/FG Bbd exh. fan, factory parts kit, coolcases.com finishing kit)
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Note: This case will NOT be offered with multiple configurations, but from from time-to-time a run will be done in different configurations. We already have tested it for punching, and a 'sweet spot' set up prepackaged would be to punch the lower front for a 90, install grommets, and put a P90FBK-M fan in the lower front. Pricing is open on this setup. Less you get carried away and want to Mod this case up, keep in mind that modding inexpensive cases yields a product similar in price to (for example) an Addtronics 6896, but of inferior construction and manufacturing quality.

CHENBRO CASES - GENIE

Chenbro now can lay claim to being in the lead for building performance cases-- Their "Pre-entry-level" (what PR person sorted out THAT slogan?) Server Case, the GENIE, is more a '120 superstation / midtower on steroids'; the JUNIOR is the first true midtower case for 90/120 fans. Until coolcases.com is up, you can at look at the GENIE here: <http://www.areasys.com/> (You will probably have to navigate - select "workstations," then look for the "C990" to see the Genie;

GENIE: Besides the standard configuration of 120s for intake and exhaust in the lower section and a 90 behind the HD cage in the upper section, this case has a very good internal HD cage for up to five 3.5 HDs. The access is great with a hinged, easily-removable bezel and side panels that slide forward an inch to lift off. It also has good possibilities for custom fan configurations.

Originally tested for EMI control to over 900 MHz, no buyers have reported any problems in cooling their systems with whatever configuration they've chosen.

SIZE: 21.6" high, 9.1" wide, 18.75" deep.
casters: add 2" for standard, 3.0" for luxury.
DRIVES - exposed: four - 5.25; two - 3.5; hidden: five - 3.5"
FAN MOUNTS - lower front: one 90 or 125
HD cage: one 90
Backboard: one 90 or 125

BASE PRICING

Genie/NONE	case, NO PS, NO fans	\$118.00
Genie/Basic	case, NO PS, one P90FBK-M HD exh, one P120L1A/4 LF intake	\$134.00
Genie/A300std	case, Addtronics/Antec 303x 300w PS, P90FBK-M HD exhaust fan, one P120L1A/4 LF intake fan	\$163.00

PS Upgrade costs over A300std: E330FM, \$18.00; SPI 350, \$37.00; E430FM, \$54.00.

MODIFICATIONS

This case is the one that we and buyers have worked with the most. Early on I sorted out a few different things to do that make the case an easier box to work in. That "basic mods" package consists of the following work:

1. drill out the rivets holding the top on and replace them with self-tapping screws. This makes the case even more accessible for setup.
2. Create two slots in the floor under the PS to facilitate cabling and interior detailing for good airflow.
3. drill out the rivets holding the Long Card holder and install a 120 fan guard on the lower front fan; optionally, I reinstall the long card holder with self-tapping screws.
4. Optionally, drill out the existing foot mounts for installation of the Addtronics casters. The price is \$22.50, including the 120 finger guard on the lower front 120. The parts kit for doing it yourself is \$4.00.

The price for caster installation alone is \$14.00 OR \$21.00--5.00 to drill out the case, and \$9.00 for the standard casters, or \$17.00 for the luxury casters. The casters include the necessary washers, nuts, and bolts for installation.

One of the very first buyers-'continuum' on the ArsTechnica Cases and Cooling Fetish Forum--also built the first hotrod: He immediately whacked out the lower front to hold two 120mm fans.

Since then, these modifications have emerged:

1. Grommet mounting, of course--\$3.00 per opening.
2. A refined dual 120 lower front. This is two punches worked into one oblong hole, and the fans are strapped together to install as a unit. \$25.00 for the punch and fan installation, fan costs extra.

3. An upper right intake fan, 90 or 120 size. This is placed on the right side panel by the 5.25 drive bays. A real advantage to this installation is that a fan here not only cools the 5.25 drives, but that it also provides a 'feed' to the other exhaust fans in the upper section--the PS fan and the HD exhaust fan. Providing this feed lessens the 'load' otherwise placed on the lower front intake, thereby allowing it to provide more cooling to the lower/motherboard section.

4. chassis grill removal. Although the Chenbro cases have perhaps the best stamped grills, there are incremental improvements to be gained by having these stampings removed.

5. other blowholes--intake or exhaust. Although you can request that we do them, you may find an argument. Generally speaking, the need simply is not there. When combined with the very real disadvantages of them--unbalanced intake/exhaust ratios, the increased dust and dirt into the system, or the possibility of spilling liquid through them, I tend to discourage their use.

Of all the cases I sell, the GENIE seems to have the greatest flexibility in configuration and modification. The case starts out working very well in its stock form, and just gets better.

- RECOMMENDED UPGRADES:
1. grommet mounting
 2. 120 backboard exhaust
 3. upper right intake--90 or 120

RECOMMENDED PACKAGE: GENIE/E330	\$185.00	(case, Enermax 330w. 'FM' PS, one P90FBK-M HD exhaust fan, one P120L1A/4 LF fan, Chenbro parts kit, coolcases.com finishing kit)
C/M factory fan	-4.00	(delete the factory fan)
MODIFICATIONS		
1 - Basic Mods	22.50	(removable top, PS floor slots, remove LCH/install 120FG, optional caster drill)
3 - Grommet Mounts	9.00	(install grommets on factory fan mounts)
FANS		
HD: 1-P90L1A/4	14.00	(install a P90L1A/4 in HD exh)
LF: 1-P120L1A/4	incl.	
BBd: 1-P120L1A/4/FG	18.50	(install a P120L1A/4 in the backboard exh., c/w 120FG)
CABLES		
1 - 20" Floppy/sgl.	2.00	
2 - 24" IDE-33/dual	5.00	(long enough for good detail)
1 - 24" ATA-66/100-dual	7.50	
ACCESSORIES		
1 - Std. Casters/c	9.00	(just roll the case out)
2 - ATX ext'n cables	6.00	(no disconnects for rolling the case out)
1 - SVGA ext'n cable	7.00	
TOTAL:	<u>\$281.50</u>	SELL \$267.00

COMMENT: This configuration is perhaps the most popular one right now. The Enermax PS is not only a significantly better quality PS than the 'best buy' Addtronics 300w PS, it also is as quiet or quieter because of its t-c fans. More buyers tend to add the backboard exhaust before they put in the upper right intake, and many also upgrade the factory HD exhaust fan to a Panaflo.

I listed all the components one may wish to get for an underdesk installation--the casters, and the KVM extension cables that make it easy to roll the case out without having to get down to disconnect the power and I/O first.

Package discounts vary, depending on what you buy. See the Appendix.

CHENBRO JUNIOR

THE FIRST DESKTOP MIDTOWER WITH 90/120 FAN MOUNTS IN AND OUT! Although designed to appear to be the GENIE with one bay cut off, it really is its own design. A single-compartment case, it is made of that better finish SECC metal, and it even includes a set of installed EMI strips around each case door. Has the familiar Chenbro "square mesh" grilles and mounts for either a 90 or 120 fan for the lower front AND the backboard exhaust. The 3-HD cage is in front, below the two exposed 3.5s, has an 80-mount in the front of it, and is easily (ha!)removable--pull a tab out, slide back and lift out. A thumbscrew at the top back releases the top--slide back, lift off, then unscrew two screws under that top to lift the sides up and off.

When this case came out, I had great hopes of it being a model that I could use to penetrate into a lower-priced market. Therefore, I have listed one configuration below that kind of does that--a complete 300w desktop for \$127.00

SIZE: 18.6" high, 8.7" wide, 18.3" deep.
DRIVES - exposed: three - 5.25; two - 3.5; hidden: three - 3.5"
FAN MOUNTS - lower front: one 90 or 120
 HD intake: one 80
 Backboard: one 90 or 120
(casters could be installed, but are not typically a recommended option)

BASE PRICING

JUNIOR/BASIC case, one P90FBK-M LF intake\$ 88.00
JUNIOR/Y300pkg case, YaHsin 300w PS, HD A80, LF A(E)120)\$127.00
 add an A(E)120/4/FG backboard exhaust for\$ 11.00

PS Upgrade costs: A300, \$10.00; E330FM, \$23.00; SPI 350, \$42.00; E430FM, \$69.00

MODIFICATIONS.

Some initial bench-testing here shows that this case probably can be one of the all-time great supercoolers when we get the right sink/fan in it, and maybe a simple mod for a flow diverter. It obviously is NOT a case to get carried away on putting in the kitchen sink--it simply doesn't need it.

2cool used this case as a model for a "case mods 101" article, and his modifications are (with the exception of a blowhole) really are the preferred ones. Here's the link--<http://www.2cooltek.com/case102.html>

Modifications

- 1. Three grommet mounts\$ 9.00
- 2. HD intake bezel cutout\$10.00
- 3. Grill removal, ea. HD80, LF90/120, BBd 90/120\$10.00
- 4. Mods Pkg: Remove three grills, cut HD intake in bezel, inst. grommets.\$35.00

Because this case is much more likely to be installed on a desktop, vibration harmonics control should be the first order of things. An HD fan should always be installed, but you can have the option of running the case with 'negative pressure' by using no lower front intake fan and just running the case with the PS fan and a 90 or 120 backboard exhaust fan.

Unfortunately, the case has been shipped to date with no intake filter. I will be stocking fan filters shortly, but it is always easy to just tape in the common dryer softener (Bounce) cloth, or cut a piece of standard furnace filter media to fit.

RECOMMENDED CONFIG'N: JUNIOR/A300	\$124.00	(case, Add. 300w PS, P90FBK-M LF intake, Chenbro parts, coolcases.com finishing kit.)
c/m ff	-4.00	(remove the P90FBK-M ffan)
MODIFICATIONS		
3 - grommet mnts	9.00	
FANS		
HD: 1-P80L1A/4	9.00	(on spec. but still disc.)
LF: 1-P120L1A/4/FG	18.50	(untailed price, disc. on FG)
CABLES (you may not need these)		
1-20" floppy/sgl	2.00	
1-24" IDE-33 dual	2.50	(long enough for detailing)
1-18" ATA-66/100	n/a	(by owner for now)
TOTAL:	<u>\$161.50</u>	SELL \$161.50

COMMENT: Remember, you buy only what you want/need. This is just a comprehensive list of what will get you up and running well.

With a 370 socket board, we need some real tall 'sinks that work best exhausting from the TOP, not blowing into the sink--and maybe some big sinks with no fans at all. That case width of 8 3/4" should all sinks up to five or six inches tall--any ideas where to find them?

CHENBRO SERVER CASES

NET - a 'cube' workstation or server

Considered a "Basic Server" by Chenbro, this case is one of the few cube products on the market. It has good features for the superstation builder wanting something different. Because of its server designation, the engineering and design of this case offers many features we all like--as shipped, it can be configured with up to 7 fans--two 90s and one 60 on the motherboard side, three 80s and a one 90 OR 120 on the drive side. Two locks secure the front and rear panels. The motherboard base is removable, and it comes complete with casters. It is even rackmountable. HotSwap drive kits and different PS plates are available.

The basic unit comes with two 90mm Panaflo 'FBK' fans--one on the motherboard front, one in the drive side rear. Buyers of this unit so far have chosen to remove the FBK fans and equip it with Panaflo L1As. A recommended standard configuration is two 90L1As in front and a 60L1A in back on the motherboard side, and two 80L1As in front and a 90L1A in back on the drive side.

SIZE - 18.4" high, 14.8" wide, 22.8" deep.

DRIVES - exposed: left side: one - 5.25, one - 3.5; right side: eight - 5.25
hidden: four - 3.5

FAN MOUNTS - left front: three - 90; right front: opt. three - 80;
left rear: one - 60; right rear: one - 90, opt. 120.

BASE PRICING

NET/none-beige case, NO PS, two P90FBK-M fans, casters, ATX plate\$221.00
NET/none-black\$233.00

MODIFICATIONS

Because of the extreme flexibility in this case setup and configuration, the option list is limited--much more depends on actual buyer needs: some may want this for a workstation right next to the desk; others may have in the server closet; one buyer is running a stock older motherboard with loads of RAM; another is using it for an overclocking hot-rod for video editing. For noise issues, consider grommet mounting and the Panaflo L1A fans.

For hotrodding, there is room to punch the LF (left front 90s into 120s, and a second 60 can be added to the backboard. Depending on the external 5.25s/HD needs, fans may be wanted or needed in the right front, right in front of one or two HDs, and these mounts may be grommited and/or punched. Using the HD cage in the right rear REQUIRES use of a 90 exhaust. NOT using that cage would allow a 120 exhaust. The pass-through spaces between the two compartments are large enough to make balancing the air flow relatively easy.

RECOMMENDED CONFIG'N ONE: (Workstation, no more than four HDs)

NETbg/E330	\$ 273.00	(case, EnerMax 330w PS, two P90FBK-M ffans, AT & ATX parts kit, casters, coolcases.com fin. kit)
c/m ffans	-8.00	(remove two factory fans)
MODIFICATIONS		
8-grommets	24.00	
2-P60, rem.LCH	20.00	
FANS		
LF: 2-P90L1A/4/FG	32.00	
BBd: 2-P60L1A/4	24.00	
RF: 2-P80L1A/4/FG	21.00	
RR: 1-P90L1A/4	14.00	
CABLES		
1-24" flpy/dual	2.50	(for both 3.5 & 5.25)
2-24" IDE-33/dual	5.00	
2-24" ATA-100/dual	15.00	
ACCESSORIES		
2-ATX ext'n	6.00	
1-SVGA ext'n	7.00	
TOTAL:	\$ 435.50	SELL: \$395.00
SHIPPING: est. 56 lbs., oversized		

COMMENT: This setup is for the buyer who wants the case by his desk. Obviously, significant money can be saved by staying with standard fans and no mods--the way it might be if it were in a server closet.

ECHO THIS SECTION NEEDS TO BE REWRITTEN

The next size up in the server case line, this case may be the best one of them all for small server/personal superstation use. It is still short enough to fit under a desk when on wheels, and its metal is 'up one (gauge)' for additional strength. Moreover, that additional height over the NET allows room for one more 90 in front, four more 5.25 bays, and a third PS.

ECHO/NONE	Workstation / Server	Yes	\$320.00
	22.6"h X 14.8"w X 22.8"d		
	Exp: 11 - 5.25; 2 - 3.5		
	Hid: 4 - 3.5 3 - P90FBK-M fans installed.		
	5 - 90 mm fan mounts (3 intake, 1 exhaust)		
	1 - 120 exhaust mount; PS mounting plates,		
	SDRPS compatible; 3 PS locations; swing-open,		
	easily removable door & bezel assembly;		
	metal lockable bustle, intrusion alarm,		
	AT or ATX parts box, casters.		

For hotrodding, there is room to punch the LF (left front 90s into 120s, and a second 60 can be added to the backboard. Depending on the external 5.25s/HD needs, fans may be wanted or needed in the right front, right in front of one or two HDs, and these mounts may be grommated and/or punched. Using the HD cage in the right rear REQUIRES use of a 90 exhaust. NOT using that cage would allow a 120 exhaust. The pass-through spaces between the two compartments are large enough to make balancing the air flow relatively easy.

RECOMMENDED CONFIG'N ONE: (Workstation, no more than four HDs)

ECHObg/E430	\$ 409.00	(case, EnerMax330w PS,three P90FBK-M ffans, AT & ATX parts kit, casters, cool-cases.com finishing kit)
c/m ffans	12.00	(remove three factory fans)
MODIFICATIONS		
10-grommets	30.00	
rem/inst. LCH	5.00	
FANS		
LF: 2-P90L1A/4/FG	32.00	
BBd: 1-P60L1A/4	12.00	
1-P80L1A/4/FG	10.50	
RF: 3-P80L1A/4/FG	31.50	
RR: 2-P90L1A/4	28.00	
CABLES		
1-24" flpy/dual	2.50	(for both 3.5 & 5.25)
2-24" IDE-33/dual	5.00	
2-24" ATA-100/dual	15.00	
ACCESSORIES		
2-ATX ext'n	6.00	
1-SVGA ext'n	7.00	
TOTAL:	\$ 605.50	SELL: \$ 555.00
SHIPPING: est. 70 lbs., oversized		

COMMENT: This setup is for the buyer who wants the case by his desk. Obviously, significant money can be saved by staying with standard fans and no mods--the way it might be if it were in a server closet.

ULTRA THIS SECTION WILL BE REWRITTEN

The biggest in the server case line, this case really is a corporate server box. for small server/personal superstation use. It is still short enough to fit under a desk when on wheels, and its metal is 'up one (gauge)' for additional strength. Moreover, that additional height over the NET allows room for one more 90 in front, four more 5.25 bays, and a third PS.

ULTRA/NONE	Workstation / Server	Yes	\$320.00
	22.6"h X 14.8"w X 22.8"d		
	Exp: 11 - 5.25; 2 - 3.5		
	Hid: 4 - 3.5 3 - P90FBK-M fans installed.		
	4 - 90 mm fan mounts (3 intake, 1 exhaust)		
	1 - 120 exhaust mount; PS mounting plates, SDRPS compatible; swing-open, easily removable door & bezel assembly; metal lockable bustle, intrusion alarm, parts box, casters.		

POWER SUPPLIES

Power Supply Options: YOU CAN ORDER ANY PS WITH ANY CASE. PERIOD. The pricing adjustments for this policy are a bit of a problem, but it remains a cornerstone of the sales I do. The comments below represent a mix of observations I have about them, no matter which hat I wear--that of a hardware geek seeking the best combination of power, quality, and price, that of a reseller who supports them, or my own biases about what brand/model is a good PS.

Power Supplies are available in sizes from 250w. to 430 w; the brands offered include Addtronics/Antec, EnerMax, Fortron-Source/Sparkle Power, Senstron, and Zippy/EMACs. Generally, other than issues of quality, PSs are treated as very much of a commodity item by the manufacturers. Between the marketing techniques and retail marketing policies, it can be very confusing about what size and which brand to choose. The specifications, and the standards for applying those specifications, can make it very difficult to choose the right one.

Any one wishing to think more seriously about choosing the 'right' PS, particularly power requirements, should go to this link:

<http://www.tdl.com/~netex/cases/ps.html#Calculating the Power Consumption of a PC>

There is a lot of good information here if you take the time to digest it, and it will probably help in finding the one you like the best.

ADDTRONICS--'A300': If there is a 'standard' PS I carry, it is the Addtronics 300w PS. Also labeled as a ChannelWell, CWT, or even Antec. Any one of these labels has shown up in Addtronics cases, BTW. In a trade name, it is the one we know as Antec 303x.

This PS took first place in the AnandTech Athlon Overclocking / PS testing article done in the spring of 2000, and it has a good reputation for power output and quietness, for it has a thermally-controlled fan. Because I buy it with the cases, I get a reasonable price on it. Over the eighteen months I have sold it I have had few problems with it--failures or returns are probably about one or two percent.

However, a couple of caveats: First, it is currently rated as a 50,000 MTBF PS--that is low by other manufacturers calculations. Second, the assembly was "cheapened" a late last Spring--the case itself now features a lighter weight cover, and it has a tacky stamped grill. Russ at compucheap and I both swear it weighs less than the previous version. Overall, I also wonder if it as well built--part of that lighter weigh may come from downsized heatsinks. But, it is cheap, and it works well. Note that the 'A250' PS I still have a few of is NOT always an Antec 250. As soon as these are gone, I will not be stocking 250 w. PSs.

ENERMAX--'E330, E430, and E650': Enermax started showing up last winter--Canadian sites were showing them, but there was no US distributor. By Spring there was an importer, and I got in a couple for sampling.

There are two basic versions, no matter which power rating you buy. The 'FM' or FAN MONITORING version is the one currently available. The 'FC' or FAN CONTROL version will start shipping shortly. Other than the slight 'bump' to a higher output rating, the outstanding characteristics of both versions are the inclusion of TWO fans, both ball bearing--an 80 in the standard 'back' location, and a 90 on what we normally identify as the bottom. There is also a 'front' intake grill. The specifications are both much tighter and the unit also has a higher MTBF rating.

The E330 has become my most popular 'upgrade' PS. Enermax priced it aggressively to gain market share, and there have been very few returns on it. Two users have reported out-of-variance voltages but with no apparent ill effects.

Our experience here has shown that it can run as quiet as the Addtronics PS, for the FM version does have control internally. People have even reported MTM error messages because it will spin down so slow.

E430: I have NOT had time to bench test this unit yet, but buyers have been entirely satisfied. With its dual-fan setup and the fan monitoring / control features, it should be a highly desirable unit for those of you concerned with the noise level of your PS fans. Further, since PSs provide only the power needed at a given time, this unit could end up being a long-term purchase if it proves to have long-lived fans.

FORTRON-SOURCE / SPARKLE POWER, INC. - 'SPI300, SPI350, SPI400': These companies may sell under different labels, and each company has independent marketing representatives, but they are owned by Fortron Source. Chenbro uses them and is quite satisfied with their quality. The 300-w. model stocked is the SPI Model FSP300-60GT; has the "Noise Killer" Fan; this is the same PS PCP&Cooling sells as its 300w 'silencer'

SPI 300: A bit noisier than an Addtronics PS, but again has much better finish. The reliability seems to be everybit as good. This product has gotten a bit 'lost' since the Enermax 330 came into the market.

SPI350: This was the first 350w. to be priced aggressively in the market place. You might consider the E330 and SPI 350 units and question why the need for the SPI-- however, the specs show that the combined peak output of the SPI 350 is actually nearly 50% higher than that of the E330. It's fan is a bit noisier, but it is not objectionable.

SPI400: This was the reigning horsepower champ in the geek marketplace until the E430 came on the scene. This fan is again a bit noisier, but the case finish is chrome over an unpolished metal. Again, high-powered output on the peak output.

LITE-ON 300w. Just as Addtronics does, so does LITE-ON--e.g., the companies ship their cases with the respective PSs installed. The model installed in the FS020 is the PS-50320-1F5. It is Intel certified, but I do NOT believe they have had it K7-certified. Bill at OutsideLoop reports no problems running it with Athlons, however, Although a cheaper stamped-grill case, it appears to be durably made and I have had no problems with it.

YAH SIN: A name unknown to me previously, Chenbro also introduced me to this one. Of limited exposure in this country, a Chenbro engineer identifies them as a good quality product, undermarketed here. A product made to market in the "good value" market, they are backed by a limited lifetime warranty. Further, this one has a switch! 136w max. output, however. No problems with it, and field reports from customers show a solid PS that is quiet.

Zippy/EMAC PSs: 400w., 500w., and 600w. versions available by special order. The standard SSR-300 Dual-Redundant and the MR2 Series mini-Redundant PSs will be stocked in limited quantities.

As soon as I have the time to sort out specifications, we will build a table here to help you see just how these PSs compare. NONE of them are 'bad'

ITEM	Description	In Stock	Price
A-S250	Add.-supplied 250w 2.01	OVERSTOCK: SPECIAL:	\$ 20.00
A300	Addtronics 300w 2.01/2.03	Yes	36.00
L300	Lite-On 300w. 2.03	Yes	36.00
SPI300-60GT	Sparkle 300w. 2.03	Yes	48.00
Y300	Ya Hsin 300w 2.01 w/switch	Yes	36.00
E330FM	Enermax 330w 2.03 w/switch	Yes	55.00
E330FC	Enermax 330w w/FAN CONTROL	YES	63.00
SPI350-60BN	Sparkle 350w 2.03 w/switch	Yes	80.00
SPI400-60GN	Sparkle 400w 2.03	Limited	108.00
S400AP2	Senstron 400w HiP w/switch	Limited	108.00
E430FM	Enermax 430w. 2.03 P4 lead	Yes	103.00
SSR-300DRHS	Zippy 5300F Dual Redundant HotSwap PS	limited	269.00
MR2-250DRHS	Zippy "Mini" Dual Redundant HotSwap PS for GENIE	limited	open

AT PSs: e-mail me--I have a few on hand.

POWER SUPPLY POWER COMPARISON TABLE
(Information from PS Labels)

MFR/MODEL	Cat. Name	-----OUTPUT-----					DRAW	Fuse
		+3.3v	+5v	comb.	+12v.	+5SB		
Add.300	A300	14A	30A	160W	8A	1.5A	7A	n/a
LO PS-5032-1F5	L300	30A	40A	250W	12A	1.2A	7A	n/a
FSP300-60GT	SPI300	14A	30A	300W	12A	.85A	9A	6.3/250v
YaHsin 300	Y300	14A	27A	136W	12A	1.5A	10A	n/a
Enermax EG351P-V	E330FM	30A	32A	160W	12A	1.8A	10A	n/a
FSP350	SPI350	18A	28A	220W	10A	1.0A	10A	n/a
FSP400-60GN	SPI400	28A	40A	235W	12A	2.0A	10A	10/250v.
Enermax EG451P-V	E430FM	35A	44A	220W	15A	1.8A	12A	n/a

POWER SUPPLY FEATURE COMPARISON TABLE

Cat.Name	MTBF	-----LEADS-----				-----FAN-----				Grill	Sw.	Cert'n
		4-pin	flpy	mbd	B2	size	type	cfm	dba			
A300	50,000									stamped	No	AMD&Intel
A300XL	50,000	7-27"	2-20"	30"	NO	80	BBg	?-T-C-?		stamped	NO	AMD&Intel
L300	open	5-18"	2-14"	17"	YES	80	?	?	?	stamped	NO	Intel
SPI300	open	6-25"	2-18"	20"	YES	80	BBg	?	?	ch.wire	NO	AMD&Intel
Y300	open	4-28"	2-34"	26"	NO	80	?	?	?	stamped	YES	Intel
E330FM/FC	open	6-24"	1-19"	18"	NO	80&90	BBg	T-M/C		ch.wire	YES	AMD&Intel
FSP350	50,000	----	----	--	YES	80	BBg	?	?	ch.wire	YES	AMD&Intel
SPI400	open	6-28"	2-28"	21"	YES	80	BBg	?	?	ch.stmp.	NO	AMD&Intel
E430FM/FC	open	7-39"	1-38"	25"	YES	80&90	BBg	T-M/C		ch.wire	YES	AMD&Intel

COMMENTS: Both the E330 and E430 a two-wire/3-pin mbd. conn. lead for monitoring (FM model) or control (FC) of the PS fans by the motherboard software. And, the E430 not only has a B2 connector, but also a 4-pin Mbd lead for the 24-pin motherboard connection found on Xeon boards or for the new P4 connector.

Note the the Enermax "FM" and "FC" are the same PSs except for Fan Monitoring or Fan Control features. And, see my rant in the appendix about how to interpret this information.

FANS

Four brands of fans are now available: The Addtronics-supplied are new case 'takeouts.' The label varies; originally "AVE" or "MAY JIE PRECISION," all size fans are now coming in as EVERCOOL." These fans are a good way to build a less-expensive, quieter box. Stock now includes the 80, 90, and 120 mm. sizes.

The Sunon 'PTB2' series is the standard case fan. Sunons are stocked in the 60mm. and 80mm. sizes, and the 80 is available with 4-pin (PS) or 3-Pin (mbd) connectors.

The Panaflo Hydro-Wave fans are considered to be one of the best-quality fans in the business, with a patented, long-lived sleeve bearing design. I stock the L1A series fans, the 'Low Noise' version. These are the solution for people needing a quiet case or wanting a premium-quality fan. They are stocked in all the common case fan sizes, and are available UNtailed or 4-pin/PS tailed.

Also available is the Panaflo 90mm FBK fan. An OEM ball-bearing version that is factory-supplied in the Chenbro cases, these are new "takeouts."

Finally, The NIDEC TA450DC, model A34341, is available in limited quantities. These are new 'takeouts' from the Lite-On FS020 cases--size is 120x25, and they are a ball-bearing model. NOTE THAT THIS IS A THREE-WIRE (T-C) FAN.

FAN SIZE	Desc.	CFM	dBA	mA	W.	In stock	Price
60mm	S60/4	18	31.3	120	1.4	Yes	\$ 8.00
	P60L(M)1A/U	12	24	110	1.32	Yes	12.00
	P60L(M)1A/4	12	24		1.32	Yes	14.00
80mm	A80/4	34	30			Yes-SPECIAL:	4.00
	S80/3	36	32	100	2.4	Yes	8.00
	S80/4	36	32	100	2.4	Yes	8.00
	P80L1A-U	24	21	60	0.84	Yes-SPECIAL:	8.00
	P80L1A/4					Yes-SPECIAL:	10.00
90mm	A90/4					YES	7.00
	P90FBK/4	(est. 45 cfm, 32 dBA)				Yes-SPECIAL:	7.00
	P92L1A-U	42.7	27	110	1.32	Yes	14.00
	P92L1A/4					Yes	16.00
120mm	A120/4	74.5	36	400	4.8	YES	9.00
	N120/4	71	38.7	200	2.4	limited	10.00
	P120L1A-U	68.9	30	180	2.16	Yes	16.00
	P120L1A/4					Yes	18.00

All fans sold separately are supplied with self-tapping screws for installation.

FAN FINGER GUARDS

metal. c/w four screws for each guard.

60 mm.	Yes	2.00
80 mm.	Yes	2.00
90 mm.	Yes	2.50
120 mm.	Yes	3.00

FAN FILTERS

metal/wire mesh. c/w four screws for each guard.

80 mm.	Yes	2.50
90 mm.	Yes	3.00
120 mm.	Yes	3.50

FANS, cont'd.

Slotcooler/4	80 mm exhaust fan for slot a highly-recommended option for 3890 buyers.	Yes	10.00
TT-900/4-ps	5.25 bay enclosure housing two-90mm. fans for EXHAUST claimed 85 cfm @ 27, prob. less cfm	Yes	20.00
HD-300	HD cooler/3-fan high-perf. sleeve fans	Yes	12.00
HDQ-300	HD cooler/3-fan, QUIET sleeve fans	Yes	14.00

Some times a cooler is a better solution than one or two column fans.

CASE FAN WIRING ADAPTERS

3-pin to 4-pin	converts 3-pin (mbd) to 4-pin in-line connector	Yes	2.50
3-pin "Y" adapter	connects 2 - 3-pin fans to one mbd. connector	NO	2.50
4-pin "Y" adapter	add on a 4-pin plug	Yes	2.50

check your mbd and fan power ratings if you want to use the 3-pin "Y" connector.

DRIVE MOUNTING KITS

3.5 Floppy kit	mount floppies in 5.25 bays	Yes	3.00
for 689x, 789x buyers who have ZIPS, LS-120s, etc.			
3.5 HD kit	mount HDs in 5.25 bays	Yes	2.00
for mounting 3.5" HDs in 5.25 internal or external bays			

DATA CABLES

Other than getting the drives laid out for best cooling or your configuration needs, getting cables of the right length for tying back is the most important thing one can do to maintain a good cooling setup. It's tedious to do, even confusing about how to execute folds and bends, but it pays off.

A word about cable lengths and data loss: there seems to be no issues of data loss for floppies or for standard IDE cabling up through PIO3/ATA33/whatever. There is speculation about the ATA66 specs--just how much loss is there at 24" or greater? Simple 'field tests' I have done here using the HD benchmarking in Norton Utilities show no dropoff at 24" lengths, and a dropoff about 10-15% of the time with a 36" cable--e.g., out of ten tests, one or two drop back to ATA-33. You should know that the ATA-66 standard does currently limit you to a maximum length of 18". Generally, this is not a problem for any of the cases if you are using the internal 3.5" brackets--and / or the lowermost 5.25 bay. However, for good case detailing, you will want to use the 24" length, and the GENIE can use the 36" length, particularly if your mbd. has a lower board location for the IDE connector. I suspect there are other variables at work here as well--EMI from the mbd, PS, or other cables, for example.

I'm not doing SCSI yet.

DATA CABLES, cont'd.

ITEM	Description	In Stock	Price
FLOPPY CABLES			
20-21". - 3.5 sgl.	good for GENIE	Yes	2.00
26"1. - 3.5 dual	for most installations	Yes	2.50
36"1. - 5.25&3.5 dual	for more flexibility in 789x	Yes	3.50
STANDARD IDE-33 CABLES			
18"1. - sgl.	depends on mbd. conn. loc'n.	No	2.00
24"1. - dual	best overall cable	Yes	2.50
36"1. - dual	gets CD-ROMs to upper bays	Yes	3.50
ATA-66/100 CABLES (80-COUNT WIRES, GROUNDING)			
18"1. - sgl. HD	depends on mbd. conn. loc'n.	No	--
24"1. - dual HD	best overall cable	Yes	7.50
36"1. - dual HD	problem solver	Yes	11.00

EXTENSION CABLES: If you've been using desktop towers and are now going to set it below your desktop or next to it on the floor, the chances are good you will want extension cables on the monitor, keyboard, or mouse--they are particularly handy for caster-equipped cases. No unplugging to roll out!

And, the PS-Motherboard extension cables can give you the extra length you need on your current PS in the new tower.

Keyboard Extension Cables

AT type:	6' - coiled, m-f	YES	2.50
	6' - straight, m-f	YES	2.50
ATX type:	6' - straight, m-f	YES	3.00

Video Extension Cables

standard	6' m-f	Yes	3.50
SVGA/HQ	6' m-f	Yes	7.50

Mouse Extension Cables

AT type	Ser. 9-pin - straight	Yes	3.00
ATX type	straight	YES	3.00

Motherboard Extension Cables

ATX-xtn5.25	5.25" m-f	Yes	4.00
ATX-xtn7.5	7.5" m-f	Yes	6.00
AT xtn9.5	9.5" m-f P8/P9	Yes	4.00

AT to ATX CONVERTER: A wiring loom that allows you to install your AT mbd in an ATX case with an ATX PS. Note that if you need a true 8-slot solution for that motherboard, you're still SOOL.

AT-ATX	AT mbd to ATX case & PS conn.	Yes	12.00
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METRIC FAN MOUNT SCREWS: These are a very handy screw for quick mounting of fans to existing 4-mm holes. A short, self-tapping, fast-feed design. Sold in bags of four.

4mmST-10	fan mount screws, bag/4	YES	3/1.00
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STANDARD INCLUDED ITEMS

Addtronics Hardware kit: ALL CASES are shipped with the Addtronics supply kit. This kit includes various ATX panels, snap-in motherboard mounts, usually some plastic mounts, EMI shields, all drive bay slides, a complete supply of screws and washers, keys, and a power cord.

Chenbro Hardware Kit: All cases are shipped with an ATX panel and parts bags. Like the Addtronics Parts Kit, these include snap-in motherboard mounts, some plastic standoffs, drive bay slides, a complete supply of screws and washers, keys, and a power cord.

coolcases.com finishing kit: All cases are also shipped with our finishing kit. "Version 0.95" is shipping now. Supplied are your invoice, cable ties in two sizes, 60mm fan mounting hardware (if not already installed), and a 3-pin to 4-pin power adapter for your three pin fan. Case buyers with YaHsin PSs get a a 4-pin "Y" adapter. Version 1.0 of the finishing kit will include a tips and instruction sheet for setting up your case for efficient cooling. Hopefully, this kit has those things in it we always wished we'd thought of earlier. If you have an idea to add to it (on the inexpensive side, of course) let me know.

YOUR FINAL PRICE

Add up your products, the shipping, and that's it. NO HIDDEN HANDLING. For example, for...

cases: Selling Price, no handling charge;
+ UPS fees, prepaid / rounded up to the nearest dollar
+ COD fee of 6.00 if you're shipping COD
= your price.

fans, hd brackets, cables and other smaller products:

Selling Price, no handling charge;
+ Priority Mail, rounded up to the nearest dollar to cover costs for
package tracking and supplies (boxes, tape, labels)--
\$4.00 for up to 2 lbs;
5.00 " " " 3 lbs
6.00 " " " 4 lbs.
7.00 " " " 5 lbs.
8.00 " " " 6 lbs.
= your price.

Accessories usually go by USPS Priority--they simply don't weigh much. I am now shipping PSs (which usually weigh in at just under five lbs) by USPS Priority instead of UPS ground. UPS ground is just about as expensive as USPS Priority, and Priority usually gets it there in three days.

Standard case shipping is by UPS ground. I ship to Canada, and I have access to a very experienced shipper for international shipments or special requests. Some of you may have also read a thread about trying to get a special rate, or rates, for worldwide service sorted out.

1. Get any and all questions answered by e-mail. Remember that the only dumb question is the unasked one. Send me your ZIP / Postal Code, your phone number, and tell me whether the shipping address is residential or commercial.
2. I'll e-mail you back with the shipping charges, and, if everything is in order, I'll set it up as an order in this e-mail response. Then you can send in an order by snail mail or by PayPal.Com.

For paypal.com:

send the Order Amount to jfhanson@hansonslan.org. To facilitate invoicing, COPY and PASTE the order e-mail into the PayPal comments/notes field. This gives me a direct reference to the payment and facilitates invoicing.

For snail-mail:

Instead of trying to fill out an attached order form, just cut & paste to a text file the order information in that last e-mail, then print it. Be sure to include your LEGAL name, the shipping address complete with ZIP / Postal Code, and your e-mail address.

Make out a check or get a Money Order payable to "Program Development, Inc." for the order amount.

Snail-Mail the order form and check ASAP to this new address:

Program Development, Inc.
attn: coolcases.com
5815 West Main St.
Maple Plain, MN 55359

Be sure to e-mail me when you've mailed the check. I'll reserve the ordered products for you when you advise me of your check going into snail mail. If I have to make backorder decisions, the e-mail time and date stamp will determine order priority. And, Money Orders will go to the top of the processing list or right behind deposited checks.

Should there be an add-on or other change to your order, I will probably ship that with the case to save you additional shipping costs, and I will rely on you to promptly e-mail me the balance. If there is a refund, I'll put that with the (adjusted) invoice in your case.

Thank you in advance for your order and your honesty.

Current Pricing: In my individual e-mails, some of you may have read slightly-varying prices on these items. The prices listed here are now the set ones. If we agreed to something else earlier, e-mail and remind me. I'll honor those prices, of course. The only real price changes upward have just been implemented, for incoming shipments now may have freight fuel surcharges.

Back Orders: I do not deposit your check until I know I can fulfill your order. I will advise you promptly if a product is out of stock, and you can decide whether to back order or to cancel.

SPECIAL ORDERS & REQUESTS: I will accommodate you, but they have to be handled individually.

CONCLUDING COMMENTS

As I get this business "off the ground," I am committed to offering higher-quality products at reasonable prices. These products are a limited variety of cases, power supplies, and products related to cases and case cooling. I also have ideas for a couple of simple products I may want to manufacture and sell myself.

This business will evolve, and you who are first to order are very important to me. I want to give you the best service I can. However, I know myself well enough to know there will be some irregularity here--I always seem to have too many irons in the fire in my life. Thanks again for your interest, and TIA for the orders--

Sales transactions will remain as an e-mail / snail mail procedure for the near future. PAYMENTS CAN NOW BE MADE THROUGH PAYPAL.COM--just send it to jfhanson@hansonslan.org. I am still looking at credit card merchant contracts, but it appears that I will not be able to qualify for the kind of contracts for CC services that make sense until after the site is running well. Believe me, I want the convenience of that type of business as much as you do, but I would rather grow this business carefully than get tangled up with ill-chosen contracts.

That's it for now. e-mail me with questions--and orders! TIA

Jim Hanson

SO WHO DID YOU E-MAIL TO? jfhanson@hansonslan.org / jfh@coolcases.com is Jim (James F.) Hanson. I own Program Development, Inc., a Small Office computer support business serving customers in the Minneapolis-St. Paul West Suburban area.

Because of my own abiding interest in computer hardware and especially computer cases, I also sell cases, power supplies, case parts and accessories for the pc enthusiast. Those sales are done 'by e-mail' under the trade mark coolcases.com.

To provide some credibility to who and what I am, consider the following information.

Phone: 763-479-3099 voice/ans. mach. & FAX.
763-479-6248 (voice/ISDN line)
763-479-6929 (voice-tape/FAX)

Mailing

Address: Program Development, Inc.
attn: coolcases.com
5815 West Main Street
Maple Plain, MN 55359

Bank: First State Bank of Long Lake.
612-473-7347
Bank Contact: Brian Peters.
Checking account in the name of Program Development

I hope that the above information is sufficient to establish my credibility for business purposes. E-mail, FAX, or call me if you have any additional questions.

Coolcases.com has rapidly become the dominant part of my business, and I am determined to grow it slowly and carefully. However, be forewarned that you are dealing with a truly small business--there is, at this time, only one full-time employee--me.

I am the one doing the e-mailing, taking orders, and 'running the business.' You deal with the owner here, not one of a number of salesmen. Like you, I am a hardware geek, and everything I sell I use or have used, and the products are chosen by me.

There are three other part-time helpers--Nik, Matt, and Jeff. The four of us are the ones who process the orders: any of us can prepare your shipment and get it ready to go, from the basic case order to the most completely-modified hotrod. We also do the shipping.

Patty has just been hired as a part-time office-manager/bookkeeper, whatever. As she helps me organize and get the office/management side of this operation up to speed, either she or I will probably be the one answering the phone. For now, the phone is likely to be answered by the tape. You really are best off e-mailing me to work out an order, but I will take calls--I just don't encourage you to work with me that way--because I talk too much; orders by phone can take much longer than you might expect.

I suspect that my own style in doing business is somewhat arcane in today's hyper-commercial market. The policies that follow reflect my attitudes and ideas about what constitutes the way two people should conduct a business transaction.

COMPANY POLICIES

1. Each sale is a personal transaction. To me that means that I will try to help you select your merchandise as is needed, and all of us will do our part in providing

prompt service in preparing your order and shipping it.

2. All case orders are individually handled and prepared. Every box is opened, the case configured with fans installed, modifications done, and accessories shipped inside as possible.

3. There are no handling charges.

4. Shipping charges are at the actual cost, rounded up to the nearest dollar. Shipping is not a profit center, and I will not use for promotion. However, UPS at times seems determined to make it a cost center--they have their share of surcharges on the monthly statement, etc., that never cease to amaze me. Therefore, when I prepare your ORDER shipping cost, I estimate the shipping weight at the actual weight or a pound or two higher, and this may result in a 'profit' of another dollar. In light of this common-sense approach, cost variances of up to \$1.99 from the actual shipping cost will not be refunded OR billed. However, variances above or below \$1.99 will be billed or refunded to the full amount.

5. LIABILITIES, WARRANTIES, ETC. At some point I will have gotten the right forms, statements, and disclaimers together to advise you of your consumer rights. I am also thinking of doing a version of John Corwith's (in)famous "Lawyer Repellant" statement. For now, this is the way I see it: Addtronics, Chenbro, Enermax, SPI, and other manufacturers/suppliers of name-brand products offer a one-year warranties on their products. I will assist you in obtaining warranty performance by providing, at my discretion, replacement parts or service. On bigger issues of the "What do you mean, my power supply isn't warranted for flooding?" kind, you will deal with the Company itself. I will not let you be unreasonably screwed nor will I do it.

For routine problems--a broken/missing piece, for example, I will ship a replacement promptly from my stock. In the interest of common sense, I may even suggest that you simply make the repair yourself. A dab of glue can work wonders at times. If you expect the "Oh my God! there's a scratch on the 5.25 blank! Send its replacement by courier on charter jet, and my courier will meet him at the airport" kind of consumer support, you are SOOL.

6. I do not sell 'out of stock' items. 'In stock' items includes those which are also in transit after re-ordering. Everything you place an order for is a normally-stocked item, and unless I screw up on ordering, everything is in stock. Should there be an out-of-stock item that impacts your order, I will notify you, and you will have the option of cancelling the order and having your money refunded. Obviously, this policy does not apply to special orders.

Generally, I am committed to customer satisfaction. If you have a problem with the product, get in touch with me. If we have screwed up, tell me. I will do what I can to resolve the issue.

I believe quite strongly that the implicit social contract of an honest buyer and an honest seller should bear on transactions like these, and that social contracts between human beings are of far greater importance than legalism and liability/responsibility issues will ever be.

Jim H.

DESIGNING A GOOD CASE FOR YOU: Here's how I think about designing a good case setup:

1. A computer case should be a well-manufactured product, with features in it that hardware geeks can appreciate--high-quality manufacture, easy access, durable construction

2. It must be capable of providing powerful performance. The box itself should be capable of accepting enough fans or larger fans to provide air cooling that will handle the most demanding load from the installed system.
3. Further, this powerful performance should not come at too big a handicap. Use of the right fans can give you both the airflow you need for cooling the hardware, and quiet enough to allow you or others to work undistracted.
4. In sorting out what case to use, I look at the drive requirements first: I figure out what current (and/or future) 5.25 and 3.5 external drive bays I will need. This is not wishful thinking, such as "Oh, in a year I will probably add six more HDs," but an honest appraisal of what you will need to have in there.

All of these cases do NOT necessarily do everything well. The GENIE, or the W8500, for example, handles multiple HD installations (more than two), better than the others without expending an external bay for an HD installation. In general, I no longer promote the use of external bays for HDs simply because they are not needed for today's HDs. Most of these cases provide cooling for HDs by the use of internal fans, saving money and keeping the setup quieter. In general, whenever it is possible, try to use a case fan for hardware cooling instead of a specialty item. It will be cheaper and have better performance.

5. With an understanding of drive bays are needed, then I look at the personal criteria for the buyer. If the buyer wants a tall, full-tower case, then the Addtronics 7896 is the logical choice. (My own bias is towards cases that can best fit under a desktop, for my office setup needs a computer that will fit in a space 25" or less. Because a case under a desktop is difficult to access, I want casters on it and I want extension cables so I can easily roll the case out to get at it. I tend to build lightly-resourced computers and then network them, but I also overclock and routinely enhance/upgrade/change my computers.)

6. Next, I look at special modifications. I enjoy modifying things I own, and I have found that the modifications often promote a quieter operation AND higher performance. These come at a cost, but oftentimes they are worth it.

7. Although it is listed last here, I try to choose a PS that provides me with adequate power for the near future. None of the PSs I sell are "no name" products, but some do some things better than others. Because quiet operation is very important to me, and the quality of the product is important, I lean to the Enermax PSs over the others. Investigation of PS specifications seems to show that there is a lot of snake oil in this area, and we should shortly have a table available that will allow honest basic comparisons of all the PSs sold.

Weighing out these criteria can be difficult: Cost really is a constraint for most of us--these cases are not cheap, and most of us do not have unlimited budgets for this part of our system. However, given the general quality of these cases, they will last for years, and could well end up being the cheapest part of a geek's system when you figure the cost on a per-year basis.

So, take a minute and set down the order of importance for you. Is having the highest cooling performance possible the most important issue, over and above case height? Then figure on including modifications. Will you REALLY add more HDs to have a RAID 0+1 setup? Then look at the GENIE, FS020, or using HDs in the 7896 external bays.

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x896-80 and x896-120 differences
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A. X890-X896 DIFFERENCES

The Addtronics site does an abominable job of showing the differences between the x890 and x896 cases, much less explaining them. Here's what's up.

The X890 series cases were designed at a time when HDs were typically installed in external 5.25 bays, and HD coolers were not made. 3.5" HDs were beginning to be widely available, but they were hot and a few were even 1/2 height. Capacities were small--200 Mb - 400 MB--and cooling for a system case usually consisted of one 80mm fan in the lower front. It was truly revolutionary then to provide a way to install multiple hard drives with fans on the drive column, and it was even more unusual to provide an internal location for a hard drive mount--a hanger in the lower section of the case. Finally, because 'Bigfoot' drives were extraordinarily popular at that time--5.25" HDs low in price, with no real cooling needs--they even provided a 5.25 internal mount in the typical dead-space behind a top-mounted floppy.

We all know how the market changed in all respects--and to accomodate the newer/smaller HDs and the overclocking phenomenon in the enthusiasts market Addtronics made some changes in the Spring of 1999. These changes accomodated the increasing need for CPU-motherboard-card cooling, acknowledged the space needs for dual-CPU motherboards, and provided greater flexibility for case configurations by providing additional internal HD mounting space.

CASE DIFFERENCES

	CASE MODEL	
ITEM	7890	7896-80
5.25 ext. drive bays:	seven - one in lower section	six-NONE in lower section
lower section chassis:	two - 80mm fans	three-80 mm fans
HD hanger cooling:	none	one-upper fan offset left
hanger mounts:	one - by CPU	two-by CPU & upper left fan
bezel air intake:	injection-molded holes	perforated metal grill

The 689x series cases differ only in the height of the upper section, providing room for three externals and no space for a fan above a single PS mount.

In the x896 case these changes work together to provide a case more flexible in its use with today's hardware and with better cooling performance. The need to use external 5.25 bays as HD mounts has significantly decreased, so the loss of an external bay is not usually a critical issue. Removing that bay allows a second hanger mount for HDs, effectively doubling the internal HD capacity. These hangers line up with the fan on the front and the backboard exhaust fan by the ATX panel. Both direct air flows to HDs and "churning" of the interior air.

And, since HDs were rapidly increasing in storage capacity, only one hanger would typically be needed to accomodate HD(s). This allows an option for increased CPU cooling--the CPU fan bracket. A standard item on the 7896, this fan bracket is adjustable.

The upper left fan in the lower front is an ingenious way to provide both cooling to HDs and to the lower section. To provide air flow to that fan, they redid the front bezel. The x896 version bezel is significantly better, with a much-larger and pinhole-perforated metal grille, a large removable filter, and much more true intake space in the chassis as well.

In summary, the x890-series cases is really best seen as a first generation case, providing neither the cooling capability or flexibility typically needed for a contemporary enthusiast's system.

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THE "-120" CASES

In the fall of 1999, I sent a set of sketches, photos, and lists of recommended changes to Addtronics cases. Many of these changes were implemented beginning in January 2000. Addtronics called these cases the "Y2K" series cases and they included the following

	x896-80	x896-120
lower front intake system:	three - 80 mm fans	one 80 upper left, one 120x25
upper back exhaust grille:	not present	added--stamped grille
upper back HD floor vent:	not present	added--stamped louver
backboard exhaust fan:	60mm.	60mm. and 90 in 2nd variant
side panel thumbscrews:	not present	in second variant

Again, Addtronics responded to enthusiasts' need for greater cooling power by providing the larger lower front intake fan. Using factory-supplied fans, up to 110 cfm of intake air can be directed into the system. Further, that upper back 5.25 mount--an unused space after the 'Bigfoot' HDs faded from sight--now had ventilation that would now allow its use, for 110 cfm of intake the 'positive pressure' would force air out and around this area as well. They not only provided an exhaust at the upper back of the case but also provided the louvers under that HD mount to cool the electronics.

Shortly after the case was announced and initially shipped, other enhancements were added: the doors were modified slightly to accommodate thumbscrews, and eventually, the 60mm backboard exhaust fan was replaced with a 90mm backboard mount. Most recently added was an intrusion alarm system.

CASE VARIANTS

Addtronics does not have a well-organized company marketing plan--they are, after all, an OEM manufacturer providing SuperMicro with the "7x0" version of this chassis, and selling versions of the 7890 to other third-tier computer manufacturers, Value-Added-Retailers, and to the retail marketplace in general. Further, they do market world-wide, not just in North America. These cases may have other versions distributed to other parts of the world, but so far little is known about them.

However, Addtronics does make running changes in its production lines, rather than introducing new features or changes as a new-improved model. Once a change is set, current supplies of a part are used until they are gone.

A good example of this is with the -120 series cases. The first 7896-120 cases came through without the "screwless" features for side panel removal. Then they came in with the door changes and the thumbscrews. Finally, they came through with the new backboard fan mount--90mm instead of 60. The last set of -120 cases that came in have yet another sticker pasted on announcing the presence of a 'detective switch' probably what we call a case-intrusion alarm.

However, it is only the "current version" of any case that is manufactured. Addtronics no longer makes the 7896-80 (my designation for the 7896 cases with three 80 mm fans in front) nor the 7896-120-60 (my identifier for the -120 version case with a 60 mm. backboard exhaust).

Because of the way I market cases to enthusiasts, I have chosen not to market by the "newest is best" approach, but to use these variations to "fit" a case to a buyer. Simply put, the best case for a person without extreme cooling needs but needing a QUIET case is the -80 model. When equipped with Panaflo 80mm L1A fans, that case provides complete and very quiet airflow--quieter than any other case available, as far as I know.

And, in building up 7896-120 hotrods, the -120-60 variant is a better choice for a system utilizing the TT-900 dual exhaust box in the upper back 5.25 mount. The inherently less cfm flow from a typical sixty helps us balance the air intake and exhaust better. But, when the early versions are gone, they are gone, and new techniques will be adapted to the current model.

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The GENIE and the FS020
WHICH IS BETTER?

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Two of the best supermidtowers made are the Chenbro GENIE and the Lite-On FS020. This has lead to Forum discussions--endless posts--about which is better. What follows is my take on the issue.

1 Fundamentally, the two cases have similar characteristics--i.e., both are nearly

identical in size, both have the midtower configuration for exposed bays with four 3.5 bays on top and two 3.5s in the middle.

2. Both are well equipped in standard form to be a supercooler, even though they use different fan configurations and are two different box designs.

3. While both are made to high quality standards of manufacture, there is no question but that the FS020 is the "highest" quality. In fact, in terms of manufacturing details--its metal finish, the quality of its stampings, assembly, the plastic in the bezel, on and on--make it simply the best overall quality box I have ever seen.

The GENIE has only one real downside in this issue--its metal finish is not the 'SECC' spec, and as such it is one notch down. This appears to really be just an appearance issue, not one of long-term concern.

4. Here's the major difference between the two cases: It rests in what I call the case 'ergonomics'--i.e., the use of the case by its owner, and it covers such areas as ease of access and details of assembly/disassembly. Consider these characteristics:

To get into a GENIE, do this: pop loose and swing open (optionally remove) the front bezel, undo two case screws at the left front that secure the left side panel. Now, using the provided fingergrasp in the left side panel, pull that panel forward about 3/4" then tilt the top out slightly and lift off. At this point, the whole left side and the front chassis is exposed. If you want totally free access, unscrew the six self-tapping screws (if you bought the BASIC mods package or hardware) and lift the top up and off.

To get into a FS020, do this: reach around to the back left side and unscrew the two thumbscrews securing it to the back. Now pull that panel back about 3/4" and lift it out slightly to remove it from the chassis. That done, undo a case screw at the back holding the left side horizontal structural member in place and give it a sharp rap downward on the left end to knock it out of position. Lift the right end up slightly and then remove the crossbar. At this point, the case interior is exposed--unless you want to get into the top two bays easily or at the PS: To get to those locations, remove the front bezel as described below and then undo the four case screws securing the top--lift up and off.

FS020 access, continued. To access the filter that is inside the front bezel, continue on--first, undo a panhead screw just below the right side notch for the crossbar. Now push out on the two tabs securing the bezel on the left side; reach around behind the 3.5 cage and undo the other two. This releases all four lower tabs securing the bezel--provided you maintain a constant pressure on the bezel to pull the left side and bottom out--and then lift it out and off the front. Finally, undo the filter frame to get to the filter media.

To access the GENIE filter--well, you can stop when you swing open and lift off the bezel. Simply undo the four clips holding the grille on and lift it off--and there it is.

It goes almost without saying that the GENIE is much easier to 'use' in day-to-day use. However, there are workarounds for the FS020 to make it easier--leave the crossbar out; it is not routinely needed. And, if the case is on your desktop, pulling the panel to the rear instead of to the front is almost a moot point. But if that case is under your desk, it's a major PITA.

You should clean filters frequently when you are moving air through the cases in the volume they allow you to do--and believe me, the effort needed to clean the FS020 filter is significant.

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My conclusion is that if you are NOT a tweaker--one who is in an out of his case frequently--then these access issues are not a significant consideration--you could be happy with either one. But, assuming monthly filter cleaning (I do my filters at the same time I do the furnace filters in my house), cleaning that FS020 filter is bothersome to say the least (my FS020 in the Office LAN is on the floor under the desk).

While there is no 'quasi-objective' scoring system developed yet for ranking cases, my own reaction is that the ease-of-access benefits of the GENIE outweigh its detriments one might assign to a lower quality chassis finish, and I personally weigh those 'ergonomic' issues as more important than a beautiful case. I say this not because I am a tweaker with the LAN systems, but because they are all under desks. (I can tweak all I want on the test bench cases.)

In an automobile metaphor, I consider the GENIE to be a Corvette or a Ferrari; the FS020 is more like a Jaguar.

Take your pick; I won't hesitate to sell either one to you.

Jim H.