PENGUIN™ COOLERS: HEAT SINKS FOR MICROPROCESSORS

PIII - SECC2

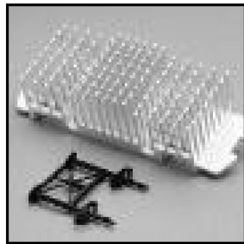
870 SERIES **Passive And Active Heat Sinks For Pentium III To Fit The SECC2 Package Processor Up To 600 MHZ**

Standard P/N	Base Dimensions in. (mm)	Fin Height in. (mm)	Interface Material Options	Weight lbs. (grams)
870-158-AP	5.400 (137.16) x 1.840 (46.74)	1.575 (40.00)	Pages 74–76	.33 (150)
870F-10-AP121D2	5.400 (137.16) x 1.840 (46.74)	1.040 (26.42)	Pages 74–76	.29 (130)
870H-20-AP	5.400 (137.16) x 2.400 (60.96)	1.210 (30.73)	Pages 74–76	.33 (150)
870H-30-AP	5.400 (137.16) x 2.400 (60.96)	1.210 (30.73)	Pages 74–76	.36 (162)

Material: Aluminum, Plain Finish

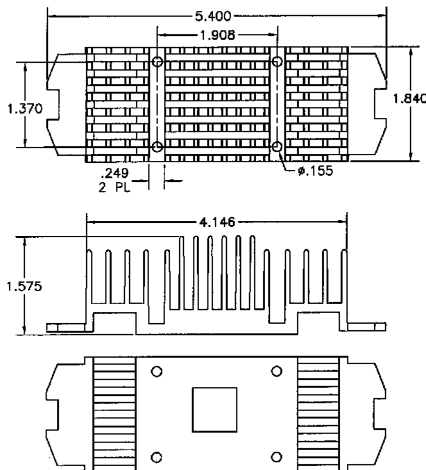
Features And Benefits

- Maximizes thermal performance for high-speed Pentium III processors
- Thermal performance exceeds Intel Corporation's requirements
- Optional phase-change thermal interface material minimizes contact resistance without the use of messy thermal compounds
- Attaches to SECC2 package with Intel-approved 919904 clip

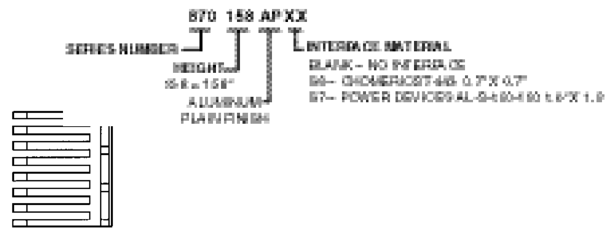


870-158-AP SERIES

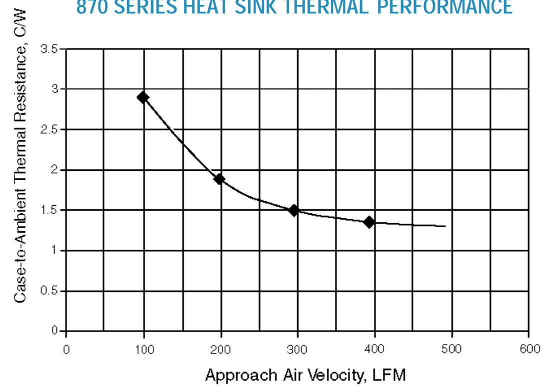
MECHANICAL DIMENSIONS



PRODUCT DESIGNATION

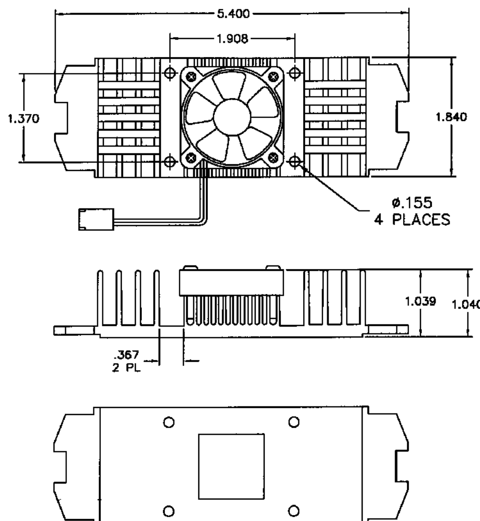


870 SERIES HEAT SINK THERMAL PERFORMANCE

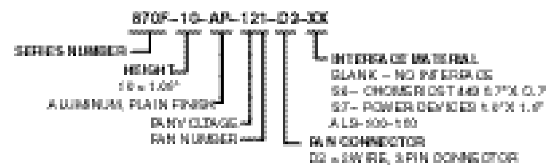


Performance shown is with S7 interface material applied.

870F-10-AP SERIES



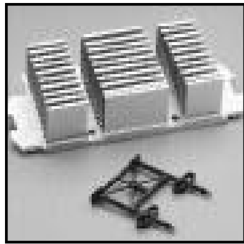
PRODUCT DESIGNATION



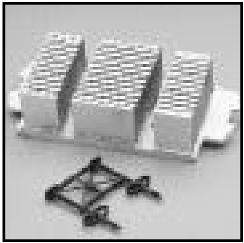
THERMALRESISTANCE: .9° C/W

Dimensions: in.

PIII - SECC2

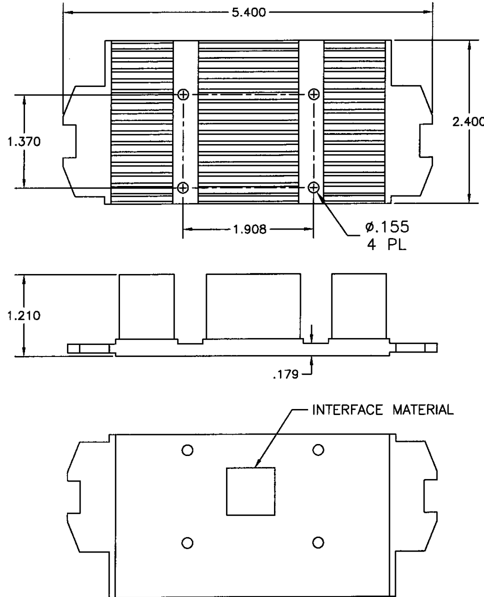


870H-20-AP SERIES

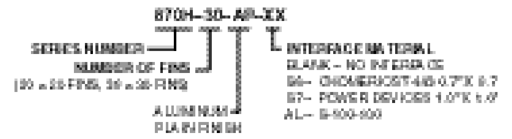


870H-30-AP SERIES

MECHANICAL DIMENSIONS



PRODUCT DESIGNATION



THERMAL RESISTANCE (°C/W) 870H - 20 FIN DESIGN

Approach Velocity LFM	BYPASS AREA / TOTAL AREA				
	0	0.2	0.4	0.6	0.8
200	1.057	1.088	1.225	1.468	2.013
400	0.907	0.918	0.950	0.995	1.072
600	0.827	0.836	0.861	0.891	0.927
800	0.767	0.774	0.793	0.817	0.850
1000	0.723	0.728	0.744	0.764	0.788

THERMAL RESISTANCE (°C/W) 870H - 30 FIN DESIGN

Approach Velocity LFM	BYPASS AREA / TOTAL AREA				
	0	0.2	0.4	0.6	0.8
200	1.008	1.165	1.669	2.792	5.556
400	0.802	0.846	0.948	1.155	1.603
600	0.735	0.757	0.803	0.882	1.036
800	0.698	0.713	0.741	0.785	0.861
1000	0.668	0.682	0.705	0.735	0.782

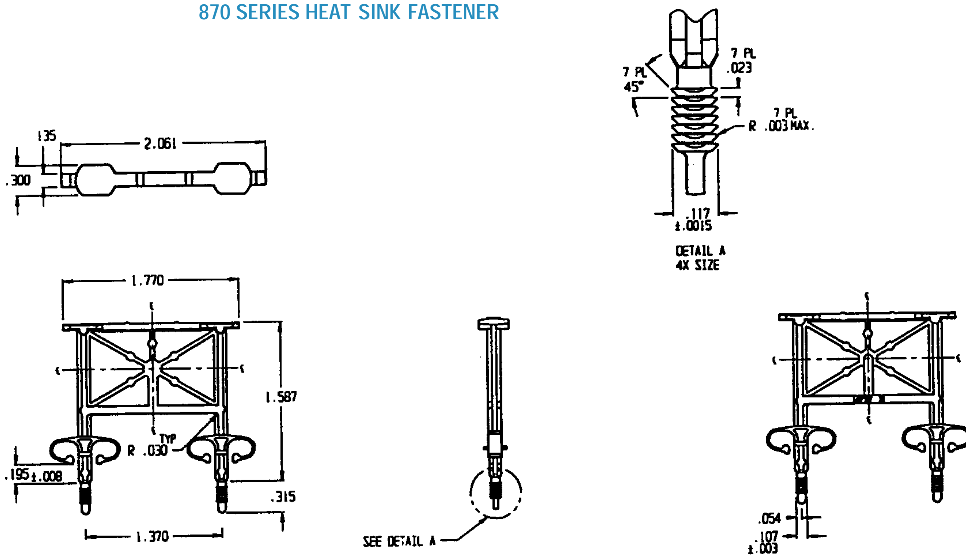
The 870H-20 is recommended for:

- *Approach velocities of less than 200 linear feet per minute (LFM) where the bypass area is at least 10 percent of the total channel area. (Bypass is any open space on the sides or above the heat sink where air may flow.)*
- *Any approach velocity where the bypass area is at least 60 percent of the total channel area.*

The 870H-30 is recommended for:

- *Other flow conditions higher than those listed above, especially in cases of no bypass.*

870 SERIES HEAT SINK FASTENER



Note:

Please order clips separately (2 clips per heat sink) P/N 919904.

Dimensions: in.

PENGUIN™ COOLERS: HEAT SINKS FOR MICROPROCESSORS

866 SERIES *Passive And Active Heat Sinks For The Intel Celeron™ Processors (Covington/Mendocino)*

Features And Benefits

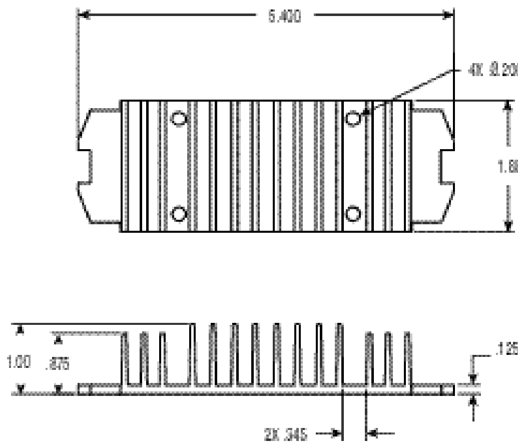
- Both Passive and Active solutions are available
- Meets Intel's thermal specifications
- Active solution offers reliable 2-wire, 12V DC ball bearing fan with standard 3-pin connector (3-wire sense lead is available as an option)

Standard P/N	Base Dimensions in. (mm)	Fin Height in. (mm)	Interface Material Options	Weight (grams)
866-100AP	5.400 (137.16) x 1.88 (47.75)	1.00 (25.4)	Pages 74–76	117
866X-100AP	5.386 (136.80) x 1.88 (47.75)	1.00 (25.4)	Pages 74–76	76
866F-100AP	5.400 (137.16) x 1.88 (47.75)	1.00 (25.4)	Pages 74–76	127

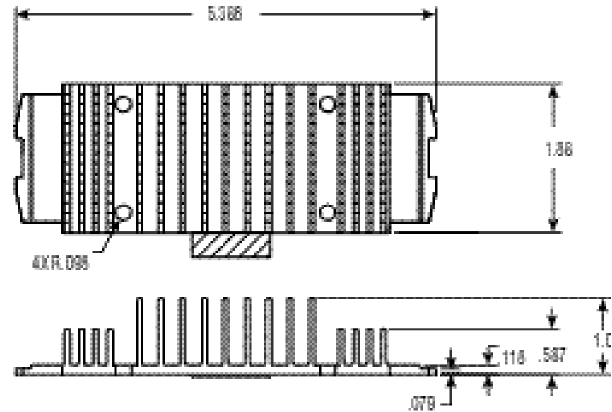
Material: Aluminum, Plain

MECHANICAL DIMENSIONS

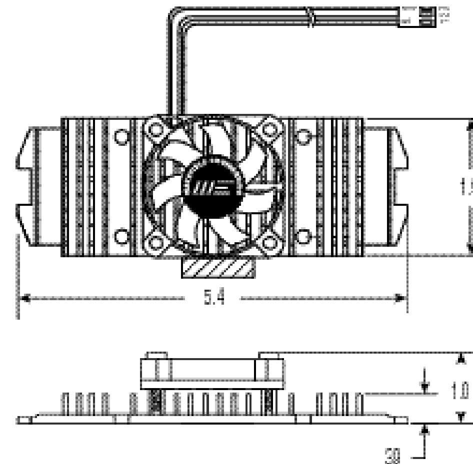
866 SERIES - UNI-DIRECTIONAL



866X SERIES - OMNI-DIRECTIONAL

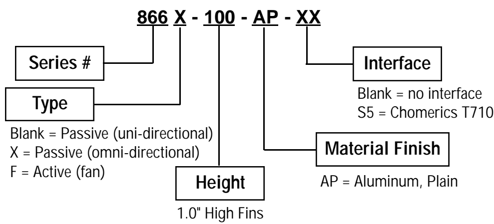


866F SERIES - ACTIVE



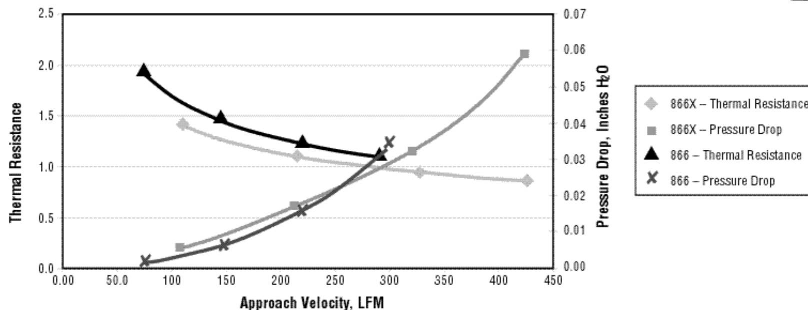
sa = 2.06°C/W

PRODUCT DESIGNATION



Attachment Clip - Part #866SC. Must be ordered separately. (1 clip per heat sink)

THERMAL PERFORMANCE DATA



PENGUIN™ COOLERS: HEAT SINKS FOR MICROPROCESSORS

859X SERIES

The 859X Series are active heat sinks for high-performance microprocessors. These processors are used in personal and networked computers as well as in the communications marketplace.

859X Series Fan Sinks for AMD ATHLON's K7 Processors Up To 600MHZ

AMD K7

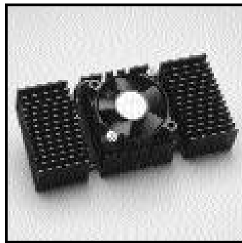
Standard P/N	Base Dimensions in. (mm)	Fin Height in. (mm)	Interface Material Options	Thermal Resistance (°C/W)	Weight lbs. (grams)
859X-124D2	4.900 (124.46) x 2.293 (58.24)	1.38 (35.05)	Pages 74–76	.591 (500Mhz)	(190)
859X-125D2	4.900 (124.46) x 2.293 (58.24)	1.58 (40.13)	Pages 74–76	.503 (600Mhz)	(210)

Material: Aluminum, Black Anodized

PRODUCT FEATURES

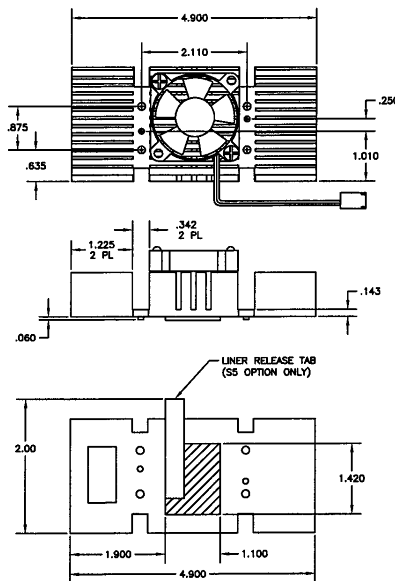
- Maximizes thermal performance for very high speed processors
- Thermal performance exceeds AMD's requirements
- Optional phase-change thermal interface material (*pgs. 74–76*) minimizes contact resistance without the use of thermal compounds
- Equipped with reliable 12VDC ball bearing fan
- Attaches to slot 1 package with standard clips
- Order clips separately for attachment to ADM K7 processor cartridge. Order two clips P/N 829SC per heat sink.
- Fan/heat sink assembly may be ordered with optional interface material pre-applied at the factory (*pgs. 74–76*).

UP TO 500 MHZ

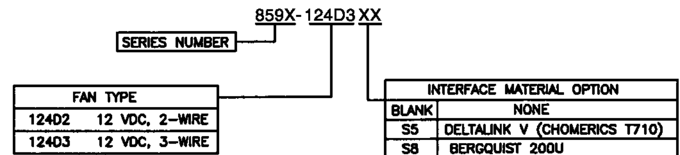


859X-124D2 SERIES

MECHANICAL DIMENSIONS

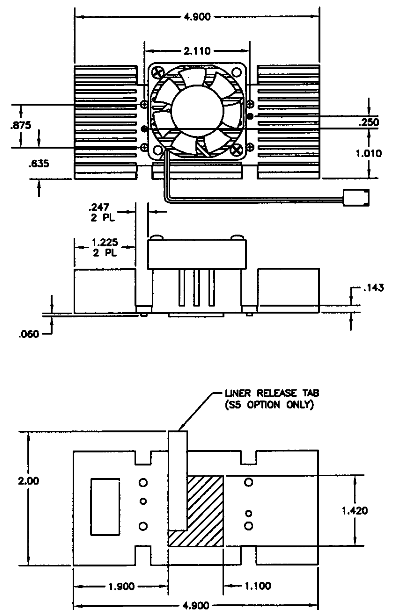


PRODUCT DESIGNATION

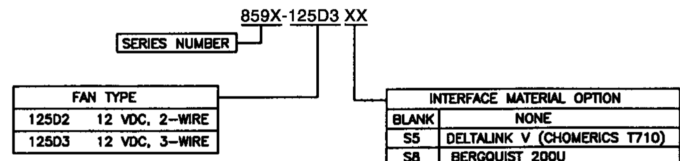


UP TO 600 MHZ

859X-125D2 SERIES



PRODUCT DESIGNATION



Dimensions: in.

PENGUIN™ COOLERS: HEAT SINKS FOR MICROPROCESSORS UP TO 450 MHZ

828, 838, 848, 858, 859 SERIES

Wakefield Engineering 828, 838, 848, 858 and 859 Series Heat Sinks provide maximum thermal performance within industry standard ATX/NLX chassis design parameters for Intel Pentium® II Slot 1 microprocessors.

These heat sinks are designed for use on desktop, deskside, and server systems which utilize Intel's Pentium® II family of microprocessors.

High Performance Passive And Active Heat Sinks For Pentium® II Slot 1 Microprocessors Up To 450 MHZ

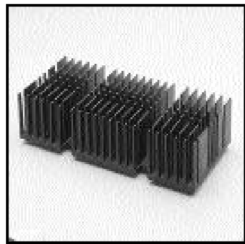
PII SLOT I

Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Thermal Resistance at 200 LFM (°C/W)	Interface Material Options	Weight (grams)
828-130AB	4.90 (124.5) x 2.25 (57.0)	1.30 (33)	.71	Pages 74–76	152.0
838-130AB	4.90 (124.5) x 2.25 (57.0)	1.30 (33)	.65	Pages 74–76	166.0
848-130AB	4.90 (124.5) x 2.25 (57.0)	1.30 (33)	.84	Pages 74–76	231.0
858-133AB	4.90 (124.5) x 2.05 (52.0)	1.33 (34)	1.00	Pages 74–76	207.0
859-124D3	4.90 (124.5) x 2.29 (58.17)	1.36 (34.5)	.52	Pages 74–76	190.0

Material: Aluminum, Black Anodized

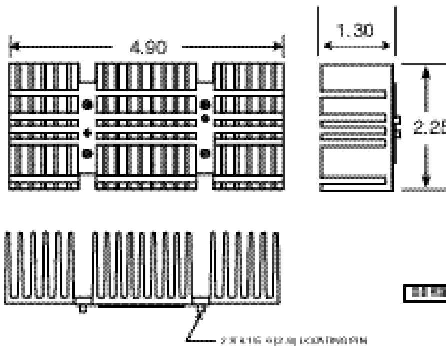
PRODUCT FEATURES

- Five standard models accommodate various airflow configurations
- Standard clips easily and securely attach the heat sink
- Standard locating pins in heat sink base ease positioning, minimizing assembly labor time
- Reliable, 2-wire, 12 VDC ball bearing fan with standard 3-pin connector (*859 series*) (*3-wire fan with speed sense lead available as option*)
- Slots to accept Wakefield 829SC Attachment Clips (*2 clips required per heat sink*).
- When mounted to SEC cartridge with 829SC clips, the assembly meets Intel shock and vibration specs
- Four holes to allow use of Rivscrew® brand fasteners as alternate fastening method
- Features in fin tips to accept heat sink support bracket
- Durable black anodize finish is standard, gold chromate is optional
- Optional, factory pre-applied thermal interface materials are available

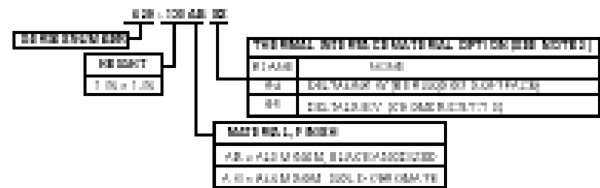


828-130AB SERIES

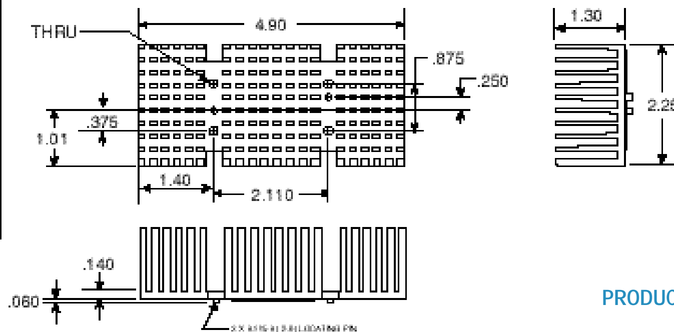
MECHANICAL DIMENSIONS



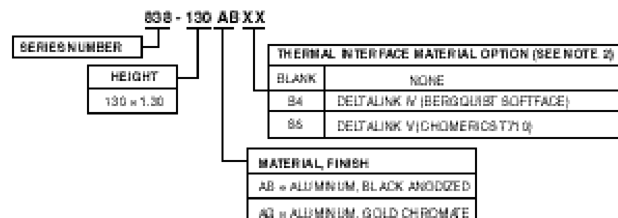
PRODUCT DESIGNATION



838-130AB SERIES



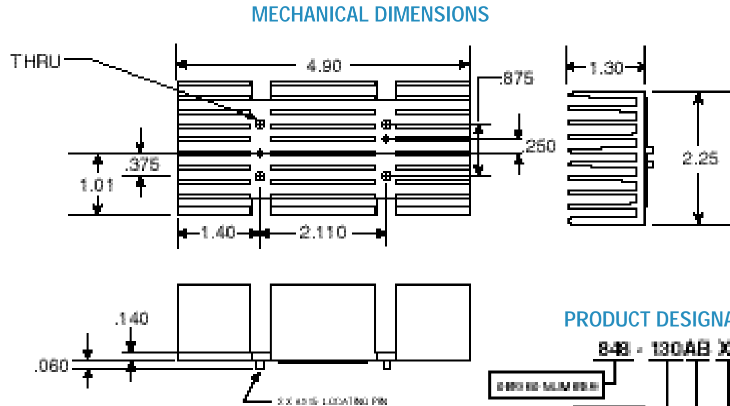
PRODUCT DESIGNATION



Dimensions: in. (mm)

MECHANICAL DIMENSIONS

848-130AB SERIES



PRODUCT DESIGNATION

848 - 130AB XX

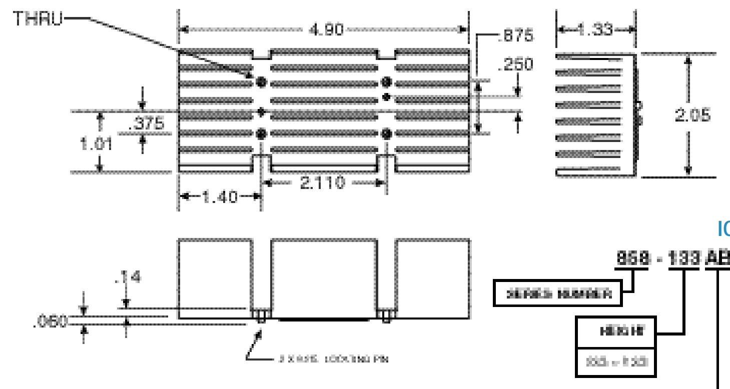
SERIES NUMBER

HEIGHT
130 = 1.30

THERMAL INTERFACE MATERIAL OPTION (SEE NOTE 3)	
BLANK	NONE
[illegible]	DELTA LINK IV (BERGQUIST SOFTFACE)
[illegible]	DELTA LINK V (CHOMERICS T710)

MATERIAL, FINISH
AB = ALUMINUM, BLACK ANODIZED
AG = ALUMINUM, GOLD CHROMATE

858-133AB SERIES



IGNATION

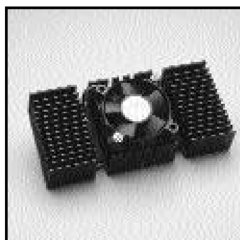
858 - 133 AB XX

SERIES NUMBER

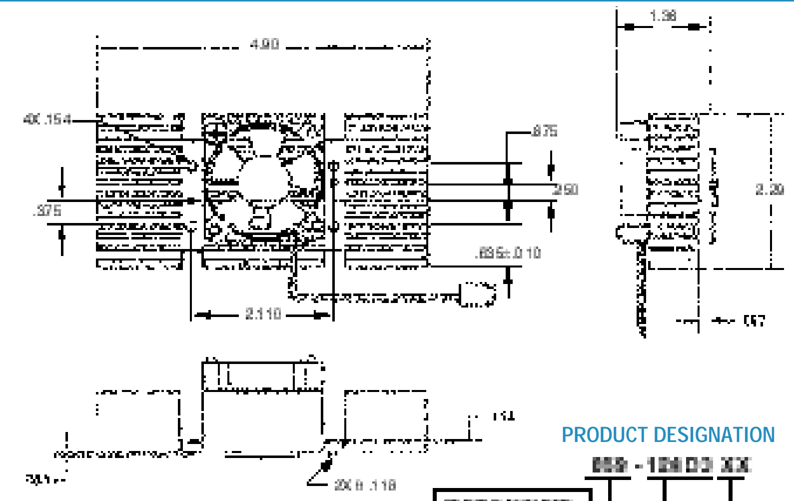
HEIGHT
133 = 1.33

THERMAL INTERFACE MATERIAL OPTION (SEE NOTE 3)	
BLANK	NONE
[illegible]	DELTA LINK IV (BERGQUIST SOFTFACE)
[illegible]	DELTA LINK V (CHOMERICS T710)

MATERIAL, FINISH
AB = ALUMINUM, BLACK ANODIZED
AG = ALUMINUM, GOLD CHROMATE



859-124D3 SERIES



PRODUCT DESIGNATION

859 - 124D3 XX

SERIES NUMBER

FAN TYPE
[illegible]
[illegible]

INTERFACE MATERIAL OPTION	
BLANK	NONE
[illegible]	[illegible]

Dimensions: in.

PENGUIN™ COOLERS: HEAT SINKS FOR MICROPROCESSORS

863 SERIES ***863X1 and 863X2 Series Heat Sinks For Pentium® II Xeon Chipsets***

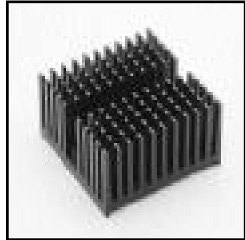
Thermal solutions for Pentium II, Xeon Chipsets, 82451NX MIOC Memory and I/O Bridge Controller, 82454NX PXB PCI Expander Bridge.

PRODUCT FEATURES

- 863X1 - cools MIOC
- 863X2 - cools PXB
- Robust clip 863SC
- Meets Intel thermal and mechanical specifications

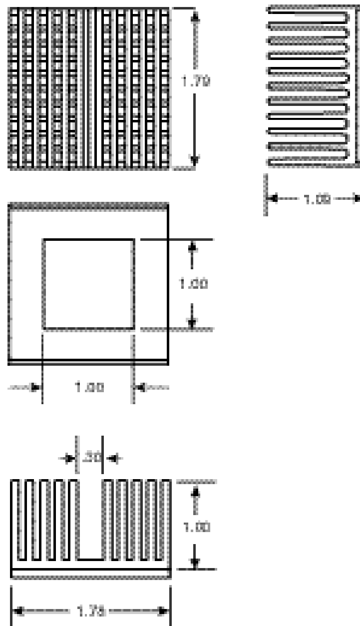
Standard P/N	Base Dimensions in. (mm)	Fin Height in. (mm)	Interface Material Options	Weight lbs. (grams)
863X1-100AB	1.78 (45.08) x 1.79 (45.34)	1.00 (25.4)	Pages 74–76	.10 (45.40)
863X2-38AB	2.74 (69.60) x 1.79 (45.34)	.380 (96.5)	Pages 74–76	.10 (45.40)

Material: Aluminum, Black Anodized

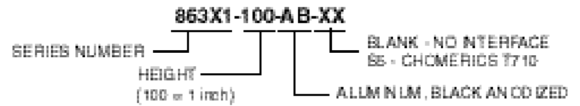


863X1 SERIES

MECHANICAL DIMENSIONS

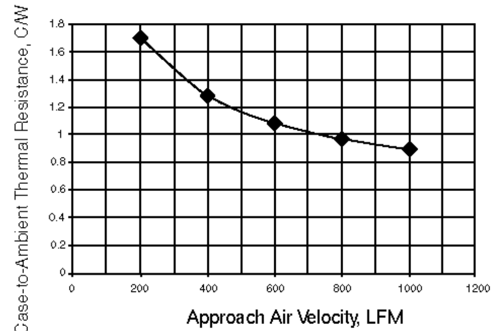


PRODUCT DESIGNATION



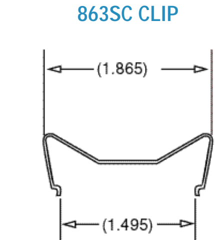
NOTE:
1. FOR HEATSINK ATTACHMENT, ORDER SPRING CLIP 863SC SEPARATELY.

HEAT SINK THERMAL PERFORMANCE



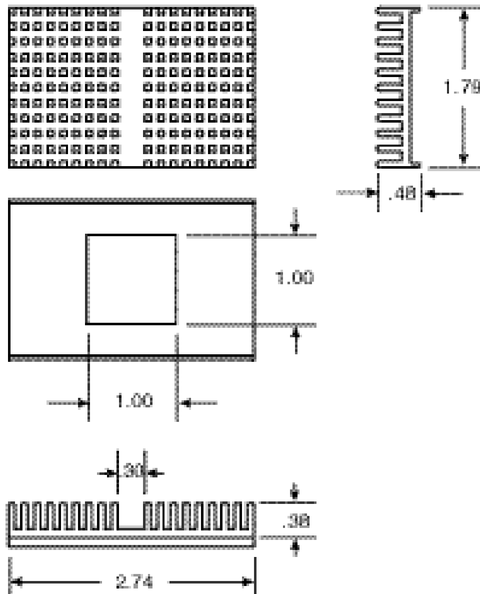
Performance shown is with S5 interface material applied.

863SC CLIP

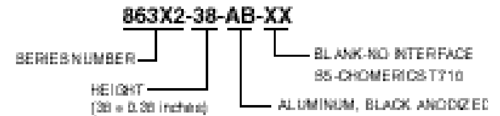


863X2 SERIES

MECHANICAL DIMENSIONS

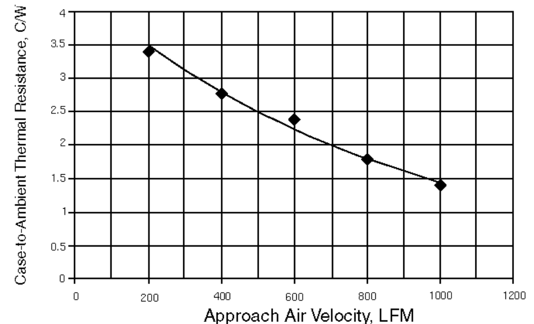


PRODUCT DESIGNATION



NOTE:
1. FOR HEATSINK ATTACHMENT, ORDER SPRING CLIP 863SC SEPARATELY.

HEAT SINK THERMAL PERFORMANCE



Performance shown is with S5 interface material applied.

863SC CLIP

(1.865)

(1.495)

Dimensions: in. (mm)

PENGUIN™ COOLERS: HEAT SINKS FOR PENTIUM II XEON (SLOT II) MICROPROCESSORS

862 SERIES *Heat Sinks For Pentium® II Xeon (Slot II) Microprocessors*

PII Xeon Slot II

Standard P/N	Base Dimensions in. (mm)	Height in. (mm)	Typical PGA Applications	Interface Material Options	Weight lbs. (grams)
862-100AB	5.050 (128.27) x 4.235 (107.57)	1.000 (25.4)	Pentium II Xeon (Slot II)	Pages 74–76	.69 (315)
862X-100AB	5.050 (128.27) x 4.235 (107.57)	1.000 (25.4)	Pentium II Xeon (Slot II)	Pages 74–76	.78 (354)
862F-115AB	5.200 (132.08) x 4.201 (106.71)	1.150 (29.2)	Pentium II Xeon (Slot II)	Pages 74–76	.56 (255)

Material: Aluminum, Black Anodized

Features And Benefits

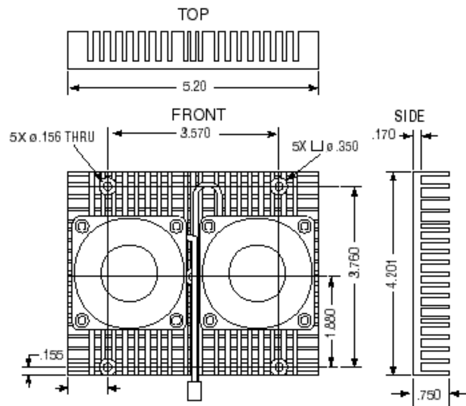
- Maximize thermal performance for very high speed processors
- Physically compatible with the Xeon (Slot II) SEC Cartridge
- Thermal performance exceeds Intel Corporation's requirements
- Meets Intel Corporation's shock and vibration test requirements
- Active solution offers reliable 2-wire, 12V DC ball bearing fans with standard 3-pin connection (3-wire sense lead is available as an option)
- Optional phase-change thermal interface material (*Pgs. 74–76*) minimizes contact resistance without the use of thermal compounds
- Attachment-Standard machine screws securely attach the heat sink to the Xeon (Slot II) SEC Cartridge

MECHANICAL DIMENSIONS

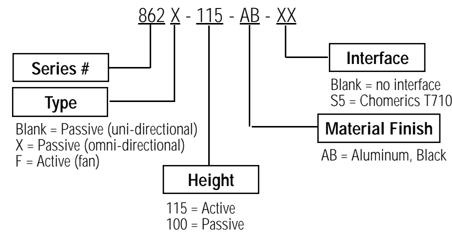
ACTIVE SOLUTION

Part Number 862F

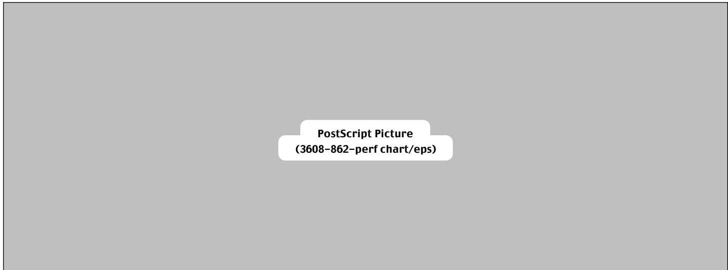
Thermal Performance 0.37° C/W



PRODUCT DESIGNATION

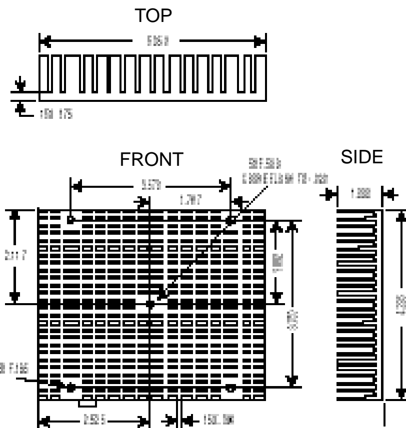


PASSIVE SOLUTIONS 862X and 862



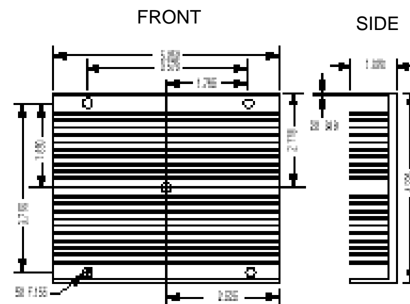
PASSIVE SOLUTION

Part Number 862X - Omni-directional



PASSIVE SOLUTION

Part Number 862 - Uni-directional



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