

Amphenol

COMMUNICATIONS SOLUTIONS

Fan Connector Solutions

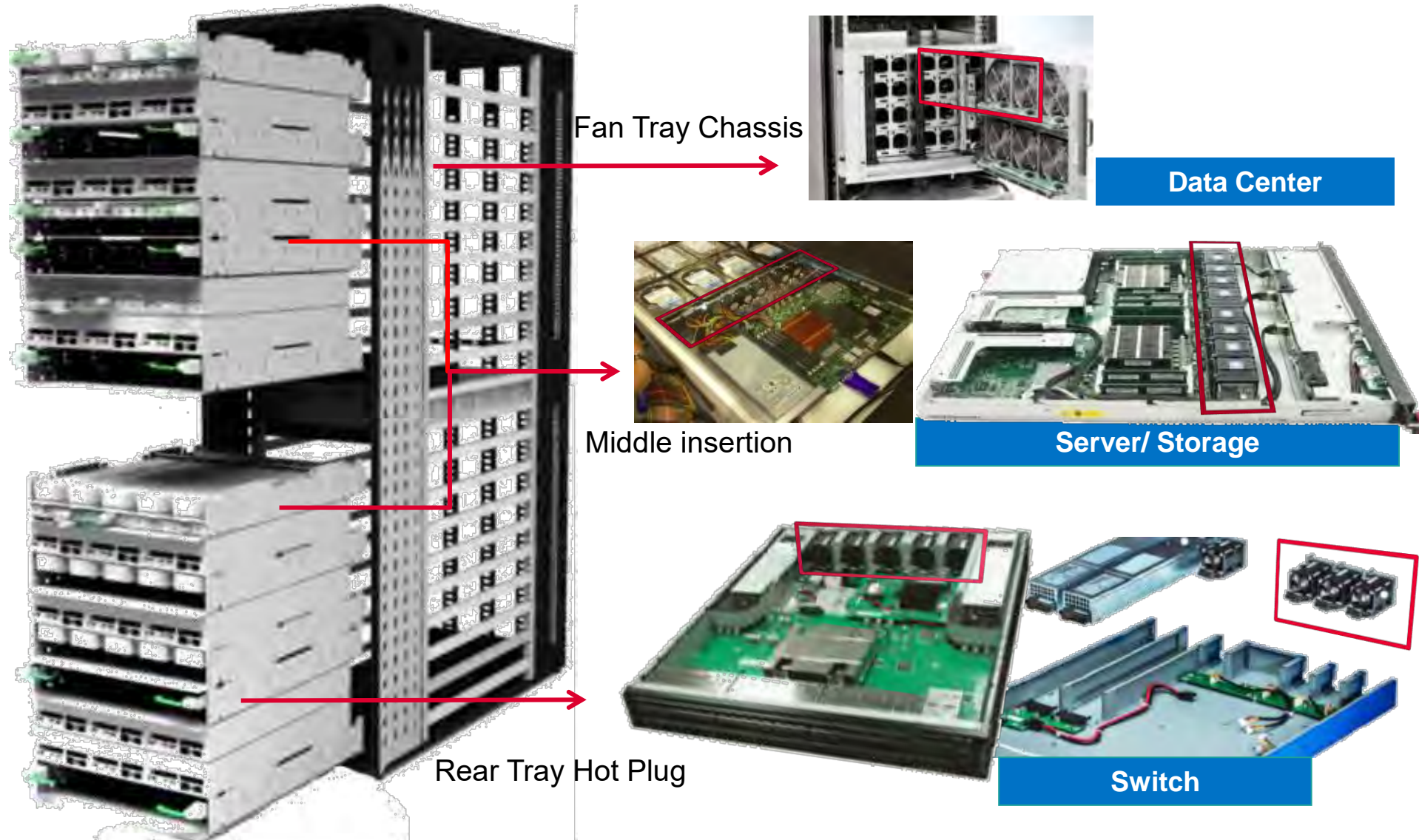
July 2022



Commercial IO

Product Application

Fan structure

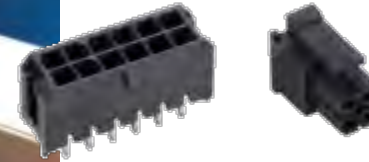
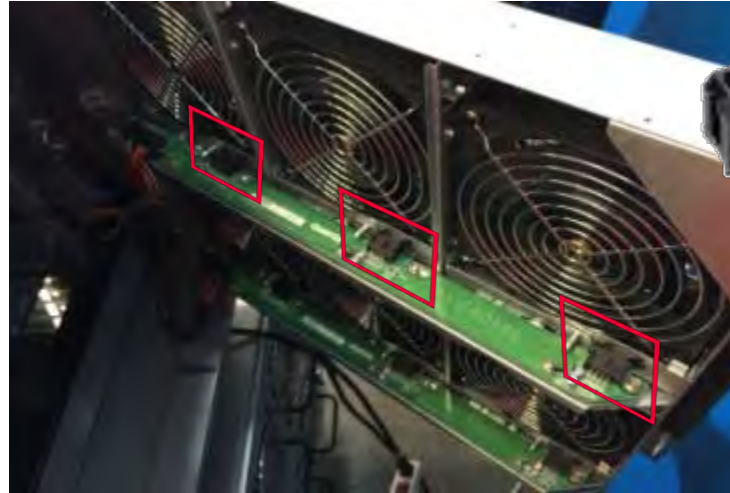


Product Application

Fan tray (Data center)

Fan board

- Micro Power
- Mini Power
- WTB HDR



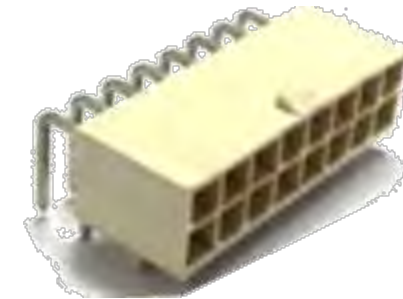
Cable Extension

- Wire to Wire
- Micro Power



Power Distribution

- 2x12 pin Micro Power

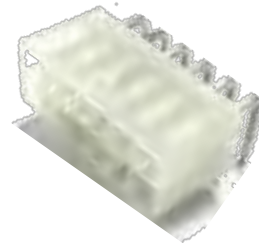
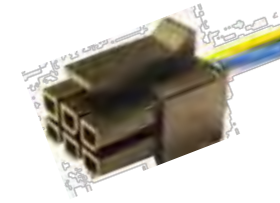


Product Application

Middle insertion (Server / Storage)

WTB solution

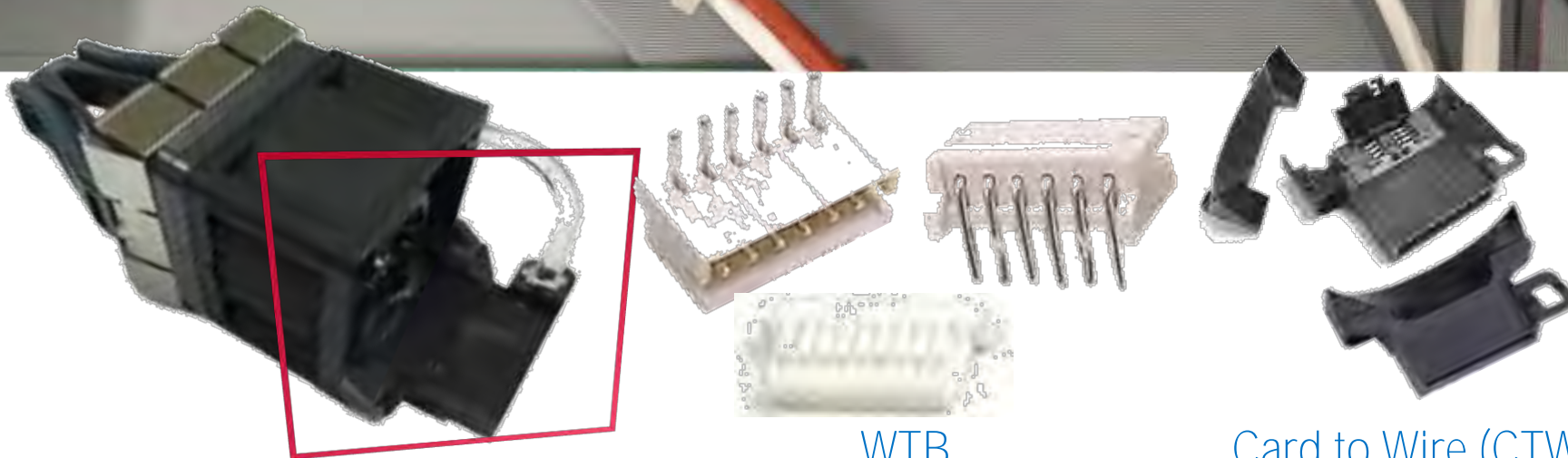
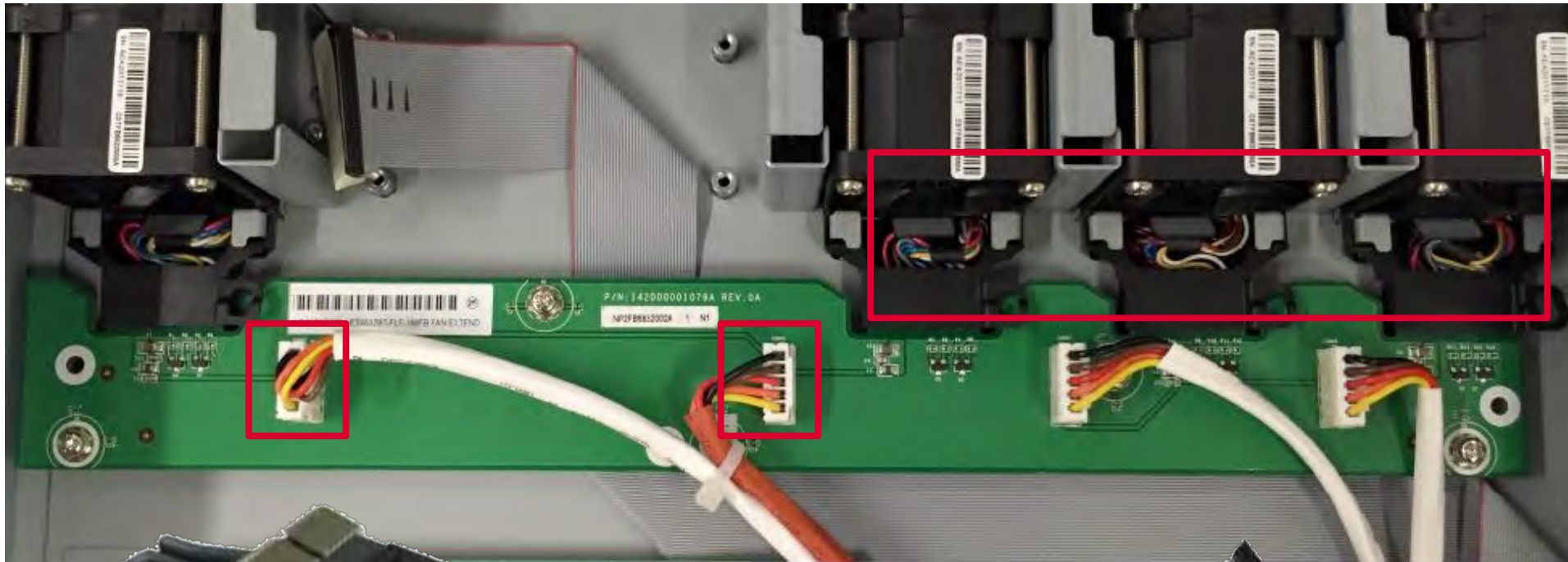
- Micro Power
- Mini Power



Customizable BMI header

Product Application

Rear Tray (Switch)



WTB

Card to Wire (CTW)

Features

- Various type for fan module
- Solution Provider
- Successful case
- Higher performance

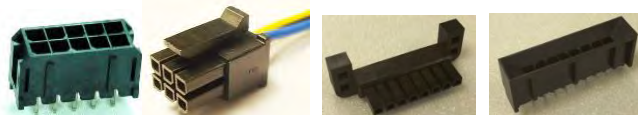
Benefit

- Completely product series
- Fast response and flexible design
- Dell / HP / Cisco / Intel / Amazon
- Higher current solution

WTB solution



WTB FAN Conn (1xN; 2xN): 1-**5.5A**/pin



Mini Power/Plus/Super: 9A/13A/**20A** per pin

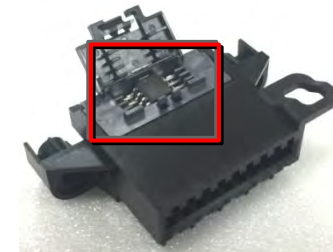
Micro Power/Plus/Super: 6.5A/12.5A/**17A** per pin

CTW solution



- **Total cost effectiveness**
- **Optional Idle keys for fan model identification**
- **Current rating: Max 4A/pin**
- **PCB thickness: 1.6mm- 2.4mm**
- **Wire: AWG 22 - 28**

CTW Smart Fan (With IC)



- **Total cost effectiveness**
- **With IC socket**
- **Detection pin**
- **Current rating: Max 4A/pin**
- **PCB thickness: 1.6mm- 2.4mm**
- **Wire: AWG 22 - 28**

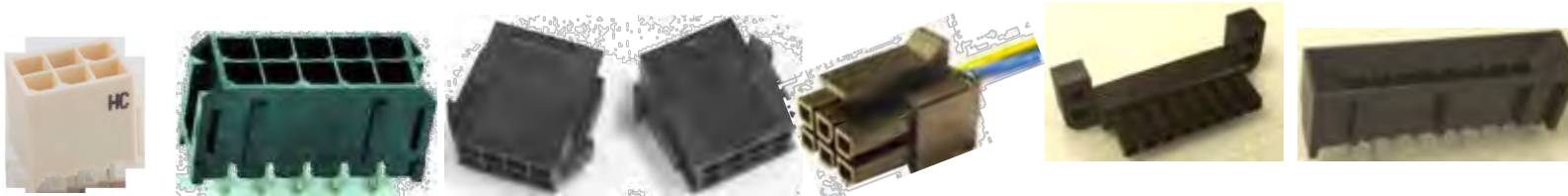
Solution Overview

Application-specific Power Wire to Board solutions

- Higher performance, higher current solutions with flexible design and fast response times
- A complete product series suitable for most types of fan module
- Successful customizations achieved with Dell, HP, Cisco, and Intel



Pin Header (1xN, 2xN): 1A-**5.5A**
per pin



Mini Power/Plus/Super: 9A/13A/**20A**
per pin

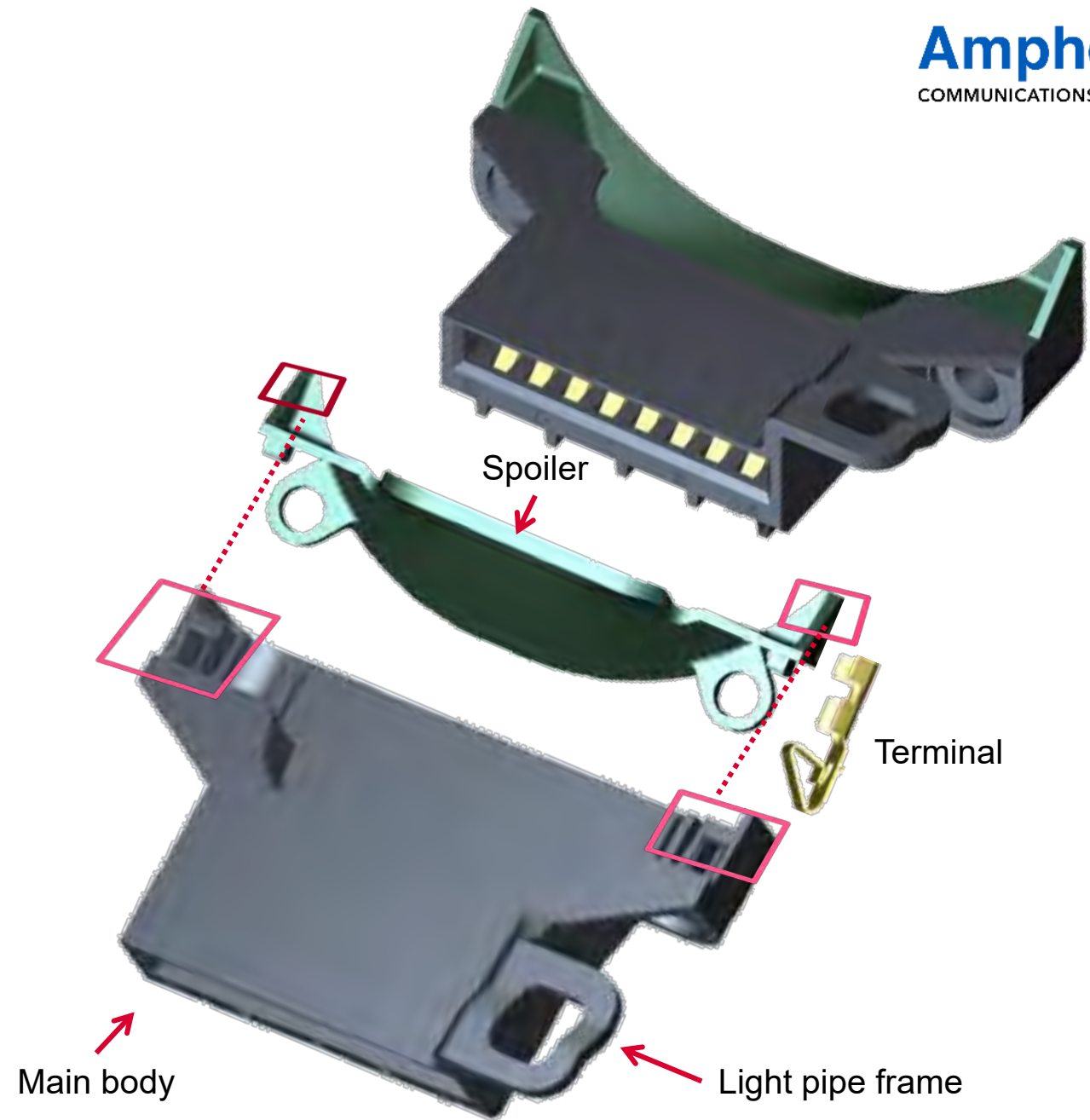
Micro Power/Plus/Super: 6.5A/12.5A/**17A**
per pin

Product Detail

CTW Fan Connector

- Accommodates PCB thicknesses 1.6mm-2.4mm
- Easy to assemble the cover and tidy up the wires
- Idle keys provided optional to identify the fan model
- Choice to place light pipe frame either left or right
- Wide cable diameter range: AWG28-AWG22
- Current rating: 4A max. per pin
- Compatible with Molex connectors

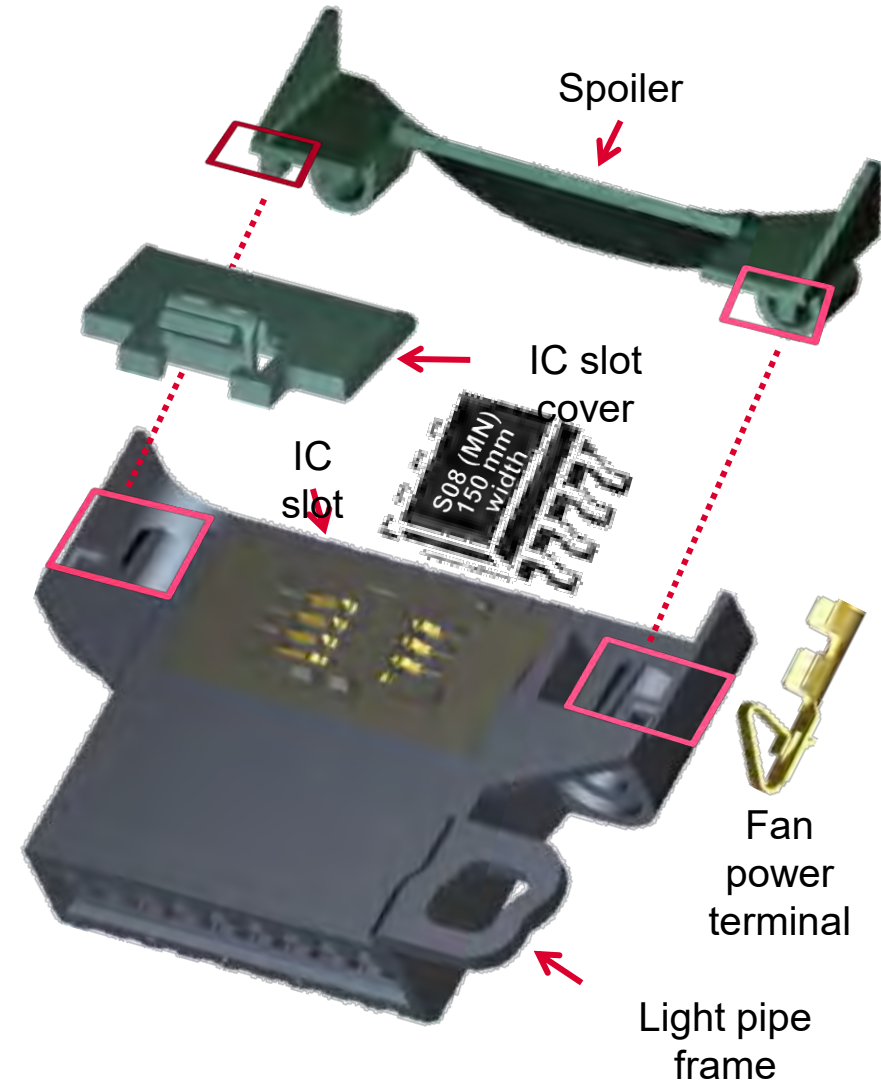
➤ Total package solution



Product Detail

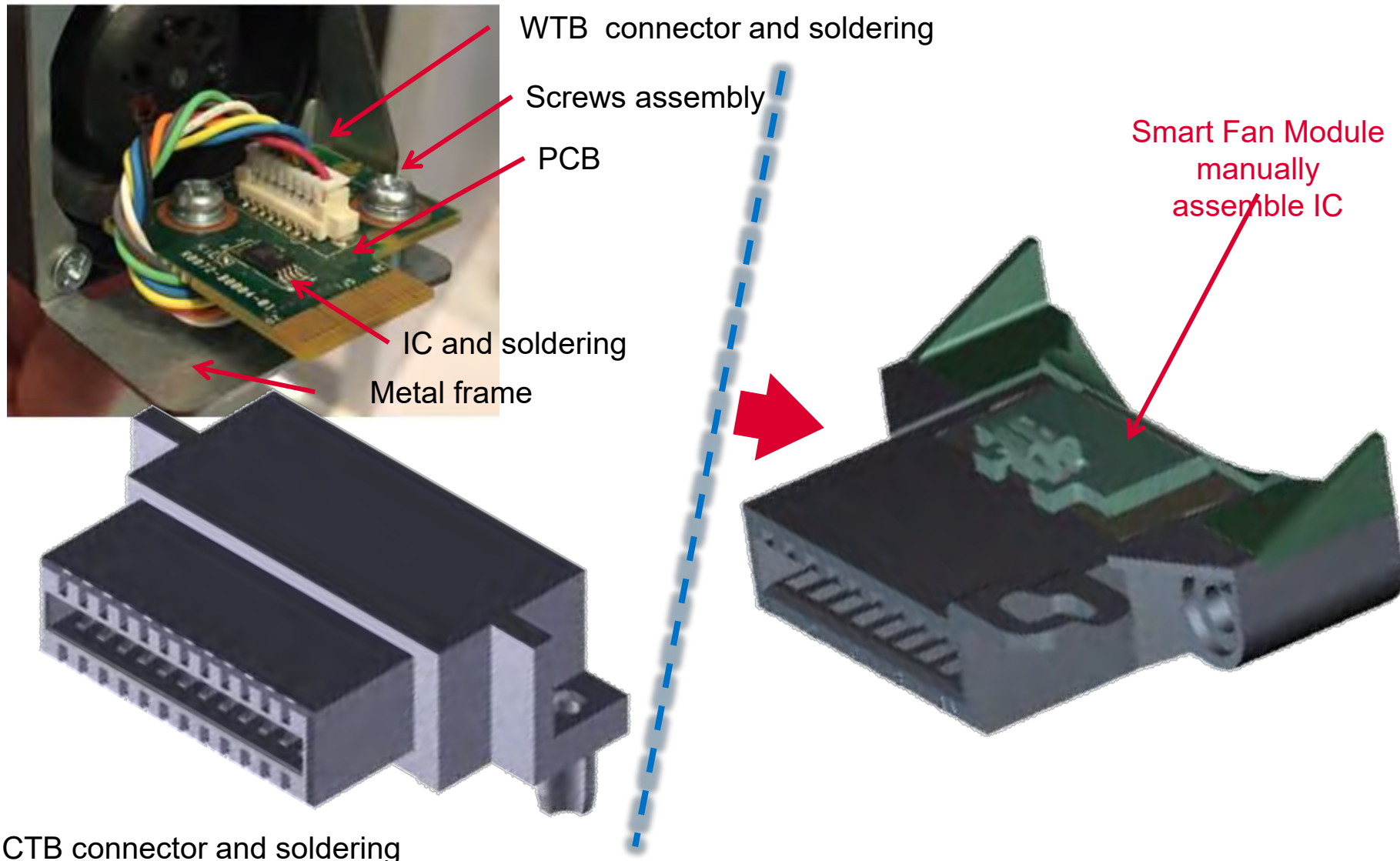
Smart CTW Fan Connector

- Slot to fit IC that monitors fan operation
 - ST Microelectronics M24C64 series
- Cost-effective vs. CTB solution
- Additional 1pin at each IC & power side for detection & FMLB options
- Accommodates PCB thicknesses 1.6mm-2.4mm
- Easy to assemble fan module
- Lesser airflow drop achieved with spoiler mechanism
- Wide cable diameter range: AWG28-AWG22
- Current rating: 4A max. per pin
- Total package solution



Product Detail

CTW Fan Connector

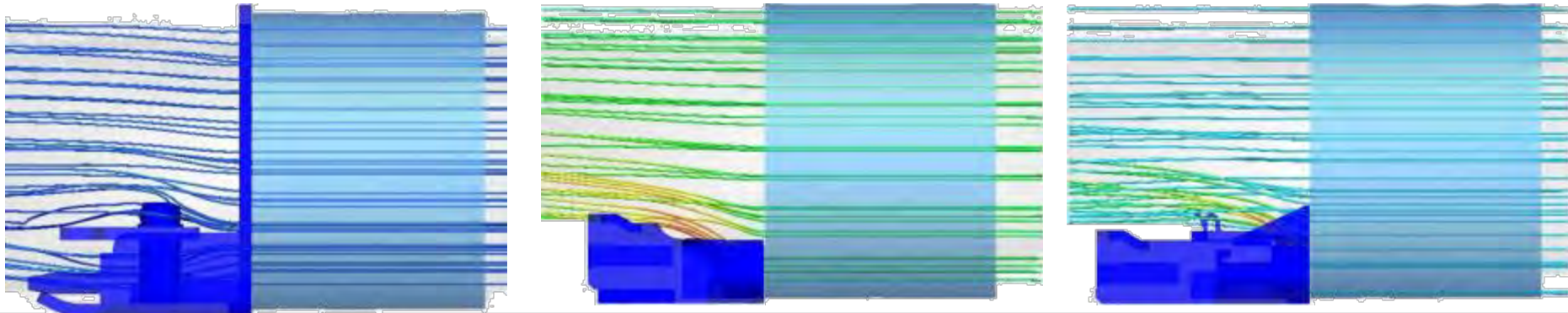


Product Detail

Fan Modules: CTW vs. CTB and Smart CTW



Airflow Drop Simulation	CTB Type	CTW type	Smart CTW type
Volume Flow (m ³ /hr)	10.878	11.633	11.575
Flow rate vs. CTW	93.5%	100%	99.5%



3.0mm pitch Micro Power / Plus / Super series

- Micro Power Series is a high density power WTB. It serves as the interface between Power Supply Unit (PSU) and Power Distribution Board (PDB), and also PDB and motherboard.

Micro Power (G881A series) (6.5A/pin)

Micro Power Plus (G88MP series) (12.5A/pin)

Micro Power Super (G88MPS series) (17A/pin)

Application

- Server, Storage, and Switch
- Data Center
- PSU
- Industry
- Drone

Board End Solution

- Circuits: 2-24
- Max Current: 6.5A/12.5A/17A
- RA (DIP/SMT), VT (DIP/SMT/PF), BMI
- Plastic post option
- Metal board lock option

Cable End Solution

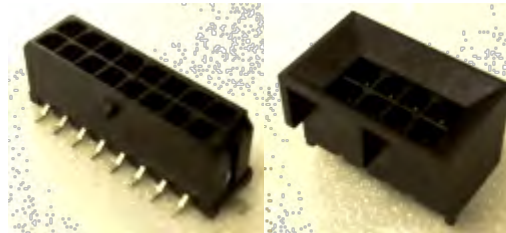
- Wire: AWG15-30
- Female type
- Plating: Tin or Gold



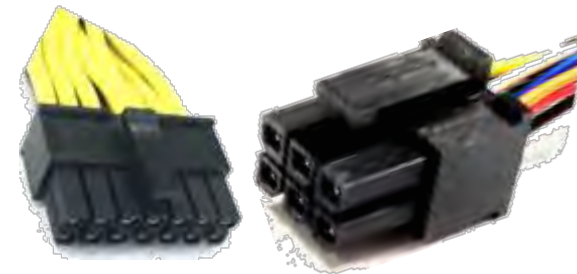
Micro Power



Micro Power Plus



SMT/ BMI



Wire type

Product Detail

Micro Power/Plus/Super – Current Derating info

Micro Power

AWG	2-circuit	6-circuit	12-circuit	24-circuit
	W-B	W-B	W-B	W-B
	Amps	Amps	Amps	Amps
20	6.5	5	4.5	*4
22	5.5	*4	*3.5	*3
24	5	4	3	*2
26	4	3	2.5	*1.5
28	3	*2	*2	*1
30	3	2	2	*1

Micro Power Plus

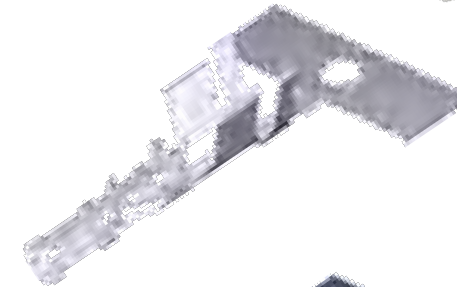
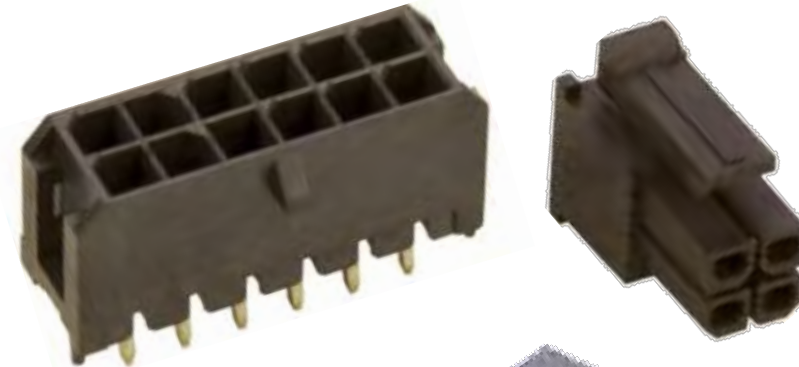
AWG	2PIN	3~4PIN	5~8PIN	9~10PIN	11~12PIN	13~18PIN	19~24PIN
#16	12.5A	12A	10.5A	10A	9A	8.5A	8A

Micro Power Super V/T Type

AWG	2PIN	3~4PIN	5~8PIN	9~10PIN	11~12PIN	13~18PIN	19~24PIN
#15	17A	14A	11.5A	11A	10.5A	10A	9A
#16	15A	13.5A	11A	10.5A	10A	9.5A	8.5A

Micro Power Super R/A Type

AWG	2PIN	3~4PIN	5~8PIN	9~10PIN	11~12PIN	13~18PIN	19~24PIN
#15	15.5A	13A	11A	10A	9.5A	9A	8.5A
#16	15A	12.5A	10.3A	9.5A	9.2A	8.5A	8A



Crimping
design



Soldering
design

4.2mm pitch Mini Power / Plus / Super series

- Mini Power Series is a common power WTB connector. It serves as the interface between PSU and PDB, and also PDB and motherboard.

Mini Power (G874D series) (9A/pin)

Mini Power Plus (G87MP series) (13A/pin)

Mini Power Super (G87MPS series) (20A/pin)

Application

- Server, Storage, and Switch
- Data Center
- PSU
- Industry
- Drone

Board End Solution

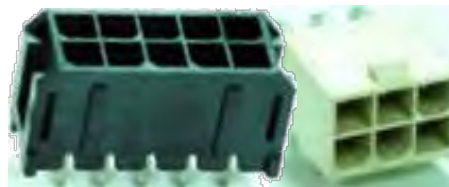
- Circuits: 2-24
- Max Current: 9A/13A/20A
- VT DIP, RA DIP
- Plastic post option

Cable End Solution

- Wire: AWG14-28
- Female type
- Plating: Tin or Gold



Mini Power



Mini Power Plus



Product Detail

Mini Power/Plus/Super – Current Derating info

Mini Power

AWG. \ POS.	2 & 3	4 - 6	7 - 10	12 - 24
AWG#16	9	8	7	6
AWG#18	9	8	7	6
AWG#20	7	6	5	5
AWG#22	5	4	4	4
AWG#24	4	3	3	3
AWG#26	3	2	2	2
AWG#28	2	1	1	1



Mini Power Plus

AWG. \ POS.	2	4-6	8-12	14-18	20-24
AWG#16	13A	12A	10.5A	10A	9.5A
AWG#18	10.5A	10A	8A	8A	8A
AWG#20	9A	8A	7.5A	7A	7A



Mini Power Super

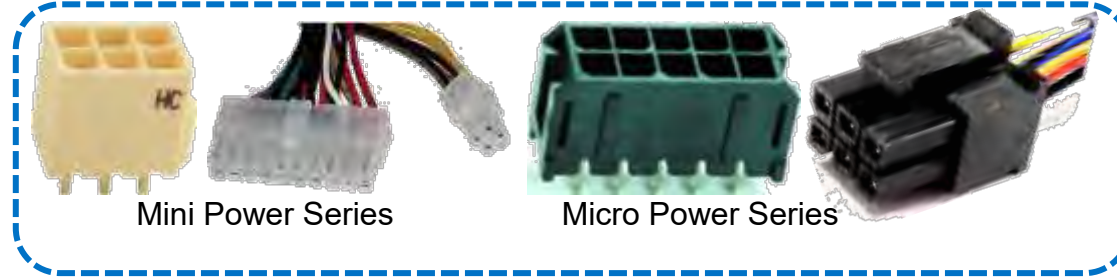
Vertical DIP type Wire to Board Current Rating (Amp Max)					
AWG. \ POS.	2	4-6	8-12	14-18	20-24
AWG#14	20A	15.5A	13.5A	13A	12.5A
AWG#16	15A	14.5A	12.5A	12A	11.5A

Right angle DIP type Wire to Board Current Rating (Amp Max)					
AWG. \ POS.	2	4-6	8-12	14-18	20-24
AWG#14	18A	14A	12.5A	12A	11A
AWG#16	14.5A	13A	11.5A	11A	10A

CMIO Mini/Micro Power Connectors - Strengths

Various spec

2-24 circuits, RA (DIP/SMT),
VT (DIP/SMT/PF), BMI,
Board lock/ post option,
diverse tail length and Wire
AWG ratings



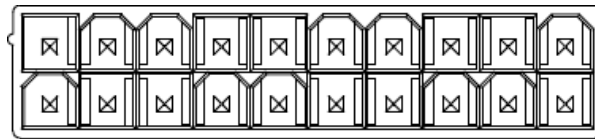
Mini Power Series

Micro Power Series

Various applications

Server, Storage,
Switch, Data Center,
PSU, Industry,
Drone, etc

Mini power 60A rating



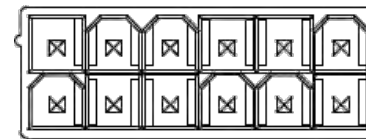
Mini Power 2x10 pin

Product differentiation

Saves space
40%



Saves cost
35~40%

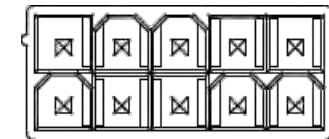


Mini Power Plus 2x6 pin

Saves space
17%

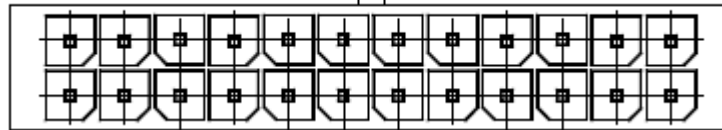


Saves cost
15~20%



Mini Power Super 2x5 pin

Micro power 45A rating

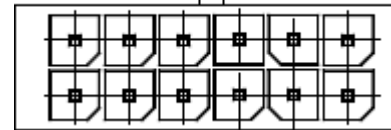


Micro Power 2x12 pin

Saves space
50%



Saves cost
45~50%

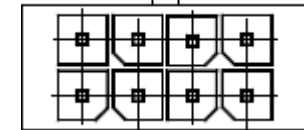


Micro Power Plus 2x6 pin

Saves space
33%



Saves cost
30~35%



Micro Power Super 2x4 pin

CMIO Mini/ Micro Power, FAN Conn PIP Solution

High temperature thermal
plastic
LCP or NY4T

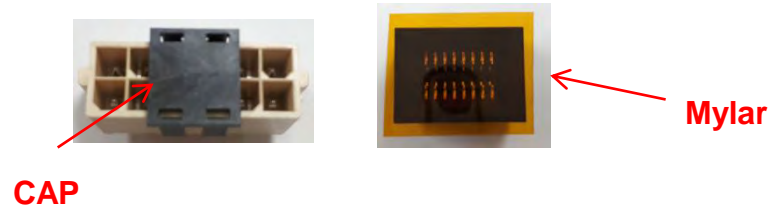


Stand off design



Stand off

T&R packing with cap or mylar



Thank you

For more information, please visit: <https://www.amphenol-cs.com/connectors/fan-connector.html>



Amphenol
COMMUNICATIONS SOLUTIONS