



ACES GROUP

Corporate Profiles

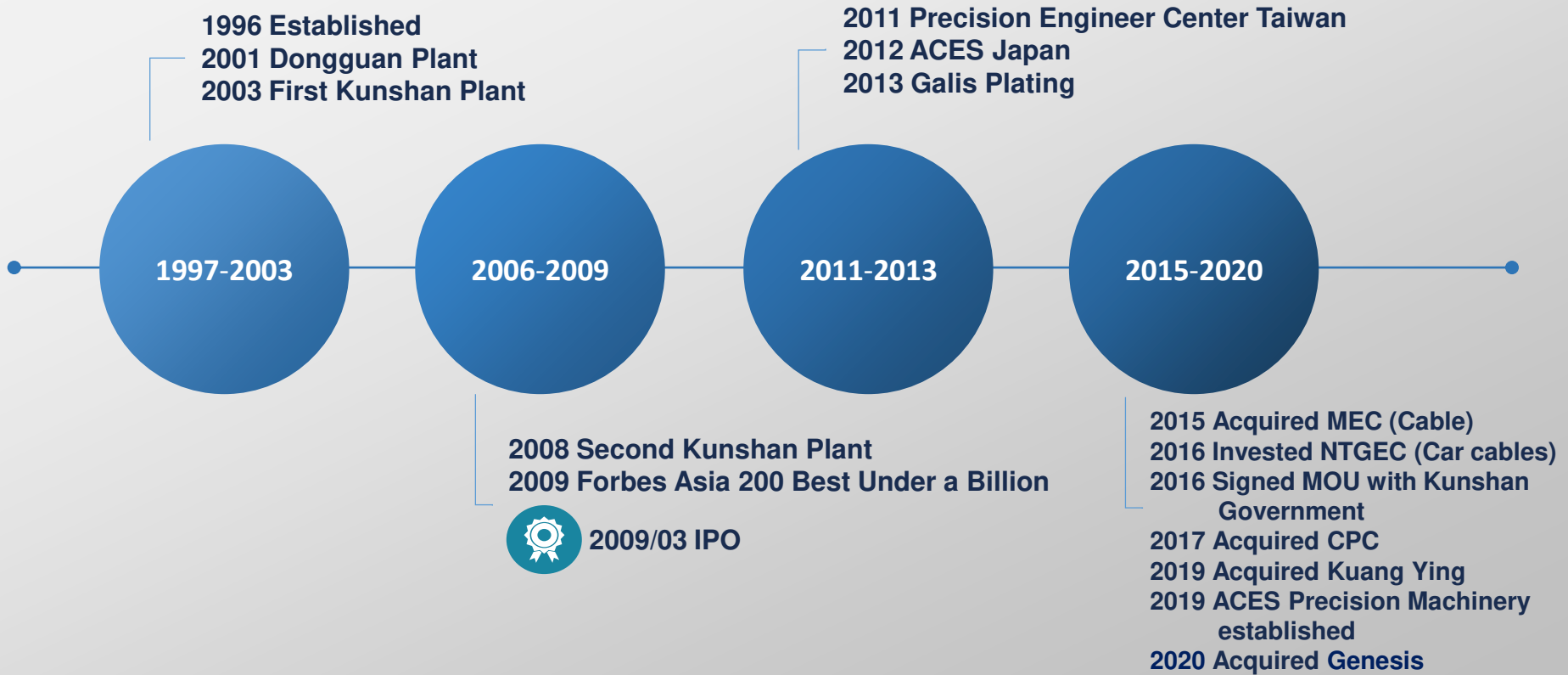


ACES Group Established in Nov. 1996.

- Over 7,000 employees worldwide
- Headquarters: Taiwan Taoyuan
- Factories: Taiwan 、 China (Dongguan 、 Kunshan 、 Ningbo 、 Guizhou) 、 Philippines 、 Vietnam
- Overseas Sales Offices: Japan 、 Singapore 、 Germany 、 USA 、 India 、 UK
- We are focusing on designing/producing/selling high technique connectors, cables assemblies, dongles, and solution of electronic devices.
- End Product including: Industry 4.0, IPC, Medical, Cloud Computing, Server, Automotive, Transportation, Laptop Computing, Consumer Electronics

ACES Group is a total solution provider

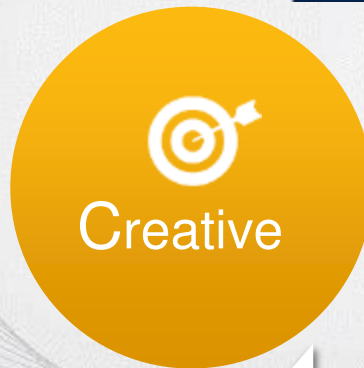
Certification : ISO9001, ISO14001, TL9000, IATF16949





Total Solution Provider

ACES
Vision





Factory
15



Sales Office
12

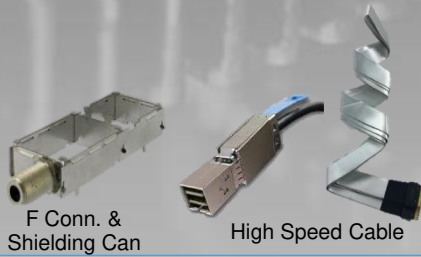


Warehouse
2

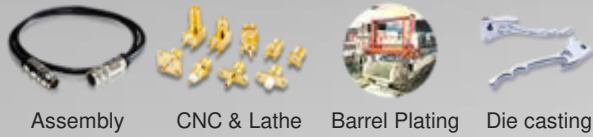


Taiwan	East Asia		Southeast Asia	America / Europe
<ul style="list-style-type: none"> Taoyuan Headquarter(factory) -connector PEC (factory) -Connector -Stamping Metal -Cable assembly Taitung Precision Machinery (factory) Taipei x 2 (office) 	<ul style="list-style-type: none"> China Dongguan x 4 (factory) -Connector -High speed Cable assembly -Stamping Metal -I/O connector Kunshan x 4 (factory) -Connector -Stamping Metal -Galv plating -Cable assembly 	<ul style="list-style-type: none"> Guizhou (factory) -I/O connector Ningbo (factory) -Metal stamping -Heat sink -Die casting -Tuner receiver Beijing (office) Chongqing (office) Japan -Tokyo (office) 	<ul style="list-style-type: none"> Vietnam (factory) -Die Casting -Plating -RF -Stamping Singapore (office) Philippines (factory) -Cable Assembly India (office) 	<ul style="list-style-type: none"> USA Atlanta, GA (office, warehouse) Hayward, CA (office) Germany (office, warehouse) UK-Northwich (office)

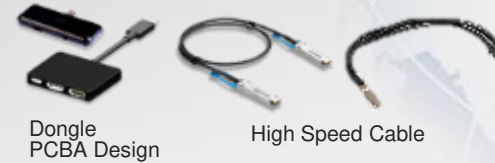




Connected Solutions



RF Connection Solution



Cable Assembly

**Barrel Plating
Rack Plating**



Molding / Stamping / Auto Assembly



Chassis / Shielding Stamping Parts



Automotive Connector / Cable



ACES System Certification History (Group)

KS: RBA passed VAP
 GTN: QC 080000:2017 Changed Certification
 GTN: ISO 9001:2015 Changed Certification
 GICC: : ISO 9001:2015 Changed Certification
 GICC: UL Certification



KS: QC 080000:2017 Changed Certification
 GTN: IATF 16949:2016 Changed Certification



PEC: ISO 14001:2015 Changed Certification
 PEC: OHSAS 18001:2007 Changed Certification
 PEC: RBA(EICC) Passed VAP



DG: QC 080000:2017 Changed Certification
 DG: ISO 14001:2015 Changed Certification



DG: ISO 9001:2015 Changed Certification
 DG: IATF 16949:2016 Changed Certification
 PEC: ISO 9001:2015 Changed Certification
 PEC: IATF 16949:2016 Changed Certification



2020

KS: CNAS Laboratory Certification
 KS: ISO 13485 Medical Certification
 KS: CNCA-RoHS Certification
 DG: RBA Pass VAP
 PLX: ISO 14001:2015



2019.05

KS: Sony GP
 PLX: ISO 13485 Medical Certification



2019.04

2019.02

PEC: QC 080000:2017
 Changed Certification



2019.01

2018.10

KS:CNCA-RoHS-0101:2011 Certification



2018.08

2018.05

KS: ISO 9001:2015
 Changed Certification
 KS: IATF 16949:2016
 Changed Certification
 KS: ISO 14001:2015
 Changed Certification



2018.02

2017.11

DG: OHSAS 18001:2007
 Changed Certification
 PLX/GTN: ISO 9001:2015
 Changed Certification
 PLX: OHSAS18001: 2007
 GTN: ISO 14001:2015 Changed Certification

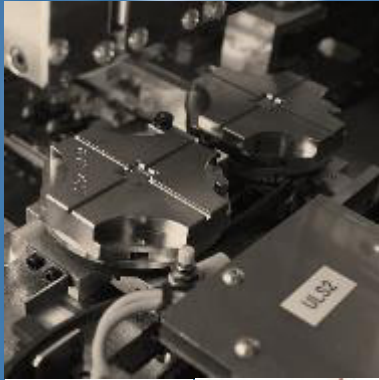




Capabilities

Achieve Your Ideas.

Aces offers extensive design, engineering and manufacturing to serve variant products in industries that include computer, computer peripherals, business equipment, home entertainment and telecommunications.



Fanuc
Nissei
Sodick

Taichung M
MultiPlas Kyori
Micron



- . Automatic Production
- . Molding Machine
- . Wire cut ED
- . Milling Machine
- . EDM Machine
- . Stamping Machine
- . Grinding Machine
- . Projection profile grinding

***Connector Capacity output
200 million pcs/month***



Molding Machine

Group/Site	Equipment Brand	5T	8.5-20T	30-60T	120-200T	250T	600T	TOTAL
ACES Precision Engineering Center	FANUC			12				12
	NISSEI			2				2
	SODICK		15	1				16
	Sumitomo		1	4				5
	Multiplas			2				2
ACES Kunshan	Chen Hsong				1		1	2
	FANUC			98				98
	NIIGATA			5				5
	NISSEI			43				43
	SODICK		5	1				6
	VICTOR TAICHUNG			3	2			5
	Multiplas			18	1	4		23
BOY	2							2
ACES Dongguan	FANUC			31				31
	MIKEL		1					1
	NISSEI			10				8
	Sumitomo			8				2
	VICTOR TAICHUNG				1			5
	BOY		1					
TOTAL		2	23	238	5	4	1	273

Stamping Machine

Site	Equipment Brand	20~30T	40~50T	60~80T	100~200T	250T	400T	TOTAL
TW	KYORI	15	3	1				19
KS	ANEX-30II(H)	10						10
	ANEX-40		4					4
	ANEX-60			1				1
	BTP-60			2				2
	Mate-3	18						18
	Mate-4		2					2
	Micron30	6						6
	NXT-3	4						4
	SN1-80			2				2
	SN2-160				1			1
	YAMADA			1				1
DG	Hengjing		2					2
	Micron30	3						3
	KYORI	7	1					8
KY	ChinFong			1	19			20
	ShingTai		3	8	8			19
	SEYI	2	2	2	19	4		29
	Shanghai		4	2				6
	Lien Chieh						1	1
TOTAL		65	21	20	47	4	1	158

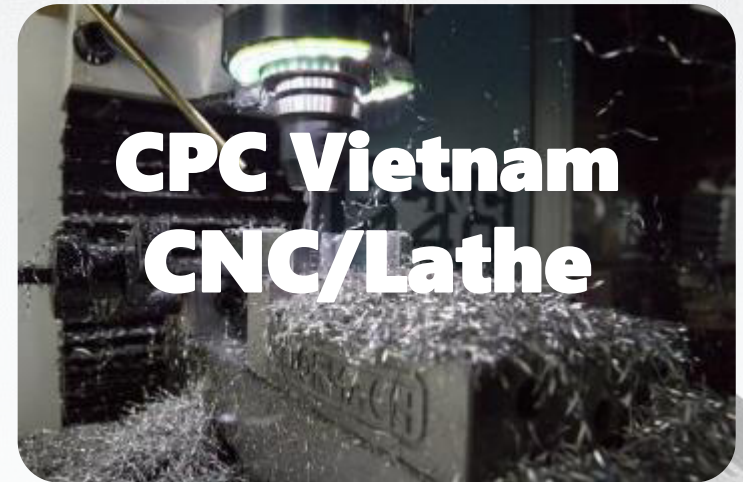


Equipment Capability

Main Equipment	Quantity
180 Ton Aluminum Die Casting	1 Set
125 Ton Aluminum Die Casting	1 Set
65 Ton Zinc Die Casting	3 Sets
Semi Auto Cutting	2 Sets
Shot blast	1 Set
Grinding	1 Set
Milling	1 Set
90 Ton Plastic Injection Molding	2 Set

Main Equipment	Quantity
Computer Numerical Control (CNC)	20 Sets
Automatic Lathe	12 Sets
Bench Lathe	4 Sets
Penumatic Press	2 Sets
Bench Drilling Machine	4 Sets
Tapping machine	2 Sets
Bench type Milling machine	3 Sets

Main Equipment	Quantity
200 Ton Stamping (80 SPM)	1 Sets
110 Ton Stamping (100 SPM)	3 Sets
80 Ton Stamping (100 SPM)	1 Sets
60 Ton Stamping (80 SPM)	1 Sets
Ultrasonic clean machine	1 Sets
Automatic packing machine	1 Sets
Wire EDM	1 Sets
Surface Grinder	1 Sets



Equipment Capability

G T N - Stamping	Quantity
200 Ton Stamping	1 set
110 Ton Stamping	10 sets
80 Ton Stamping	6 sets
60 Ton Stamping	2 sets
16-40 Ton Stamping	5 sets

P L X - Stamping	Quantity
5-30 Ton Stamping	2 sets
40 Ton Stamping	3 sets
60 Ton Stamping	2 sets
80 Ton Stamping	1 set

P L X - Molding	Quantity
insert molding	3 sets
40-70 Ton Molding	11 sets
90 Ton Molding	1 set
100 Ton Molding	2 sets
120 Ton Molding	2 sets
130 Ton Molding	1 set

G I C C	Quantity
Molding	4 sets
insert molding	1 set
Hot bar machine	6 sets

Genesis

High speed connector



High Speed I/O Cables



CONNECTOR PRODUCT CATEGORY

- **Automotive**
 - ADAS, EV, & ECU
- **Wire to Board**
 - IDT, Crimped (Power), & Soldering
- **FPC**
 - High Speed, Automatic Lock + Ground, FPC/FFC with Lock, & Low Profile
- **Board to Board**
 - Pitch > 1.0, 0.5~0.8, & < 0.4
 - EMI & Power type
- **High Speed**
 - Gen Z, PCIe, SAS, Power Card Edge, Power Conn, Power Card Edge Conn.

ELECTRICAL ENGINEERING DESIGN

- **High Level Design**
 - Link Budget & Architecture
 - RF Signal Flow Analysis – NF, P1dB, IP3 etc.
 - V-Model System Integration Methodology
- **Low Level Design**
 - Microwave Device & Circuit Simulation
 - AGC & PLL
 - PCB Impedance Control

SIGNAL INTEGRITY & MECHANICAL ANALYSIS

- **SI Simulation**
 - HFSS Full Wave Simulation
 - Circuit Simulation
 - Q3D Low Frequency
- **SI Measurement**
 - Freq. Domain
 - Time Domain
- **ME Simulation**
 - Tolerance Analysis
 - Vibration Simulation
 - Thermal Simulation
 - Stress Analysis
 - Moldex3D
- **Testing**
 - 3D X-ray
 - Reflow Simulation
 - Durability
 - Current Rating

CAE/CAD Capability

Electrical design

- Impedance
- IL/RL
- NEXT/FEXT



Full-wave analysis



ANSYS Q3D Extractor
Quasi-static analysis



Channel performance
(circuit behavior)



Engineering drawing

Mechanical design



Stress analysis



Heat transfer analysis



Injection molding

- Tolerance variations
- Reliability estimation
- Current rating
- Heat dissipation
- Warpage estimation
- Filling efficiency

- **Mis-understanding for CAE**
 - Efficiently?
 - Accuracy vs. time
 - Accurately?
 - Garbage In Garbage Out
- **Compromise between accuracy and time**
 - Engineering judgment
 - **Not Best But Good Enough!**

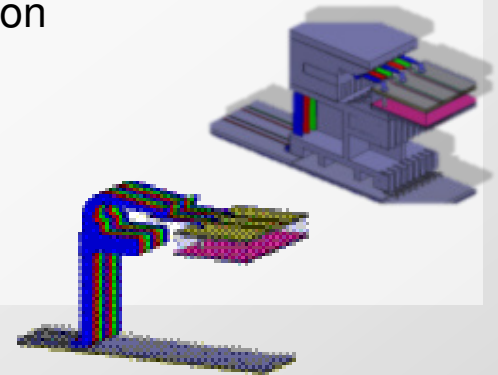
High Speed Connector Capability



High speed analysis –Full-wave and EM simulation

Connector Design and Optimization

- Characteristic impedance
- Return Loss/Insertion Loss
- NEXT/FEXT



Network Analyzer-E5071C
Measurement bandwidth
300KHz~20GHz



Network Analyzer-N5225B
Measurement bandwidth
10MHz~50GHz

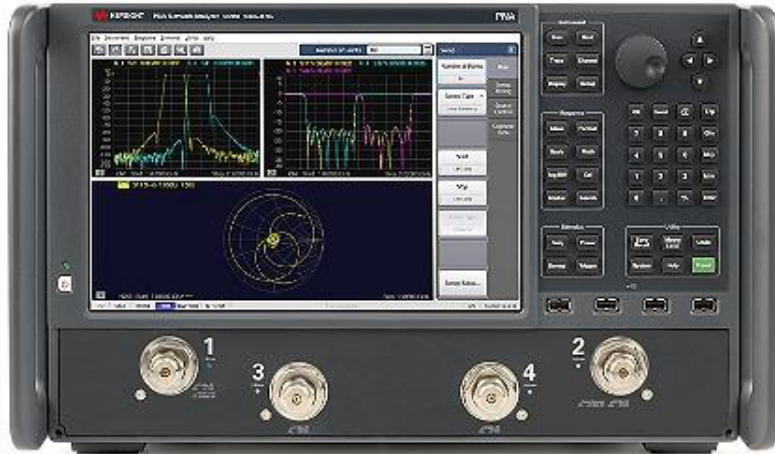
• Mission

Technology supports on high speed and innovative product development

• Technologies

- 1.CAE (computer aided engineering)
- 2.measurement for high speed transmission

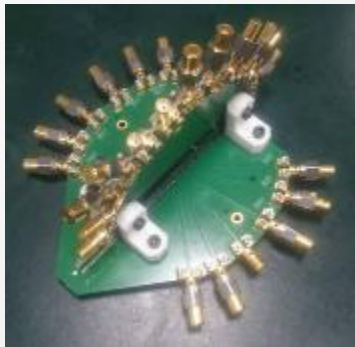
Vector Network Analyzer



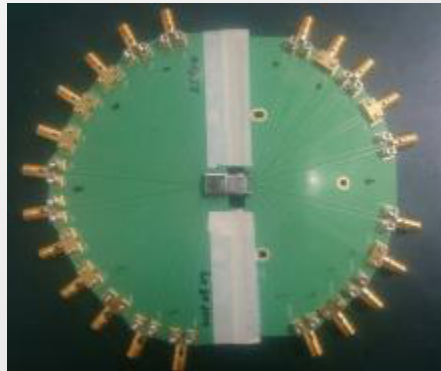
High bandwidth of 50GHz fits high speed measurement for the next generation interconnection technology: Gen-Z, PCIe4/5, TBT validation and verification for the high speed simulation improves the design capabilities.

Test Fixture

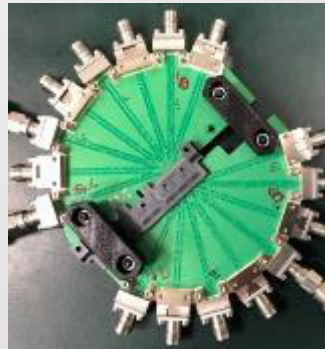
PCIe4



Type-C



Gen-Z



Agilent N5225B

Bandwidth:10MHz to 50GHz
Measurements for S-parameters
Calibration schemes

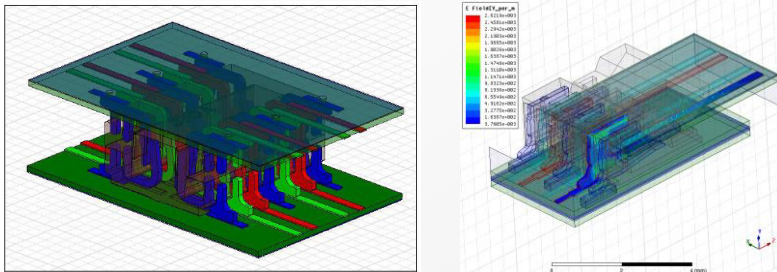
Auxiliary software-PLTS

Analysis for data: parameters
for time domain, eye-pattern
generation performance
evaluation for high speed
interconnection.

High Speed Connector Capability

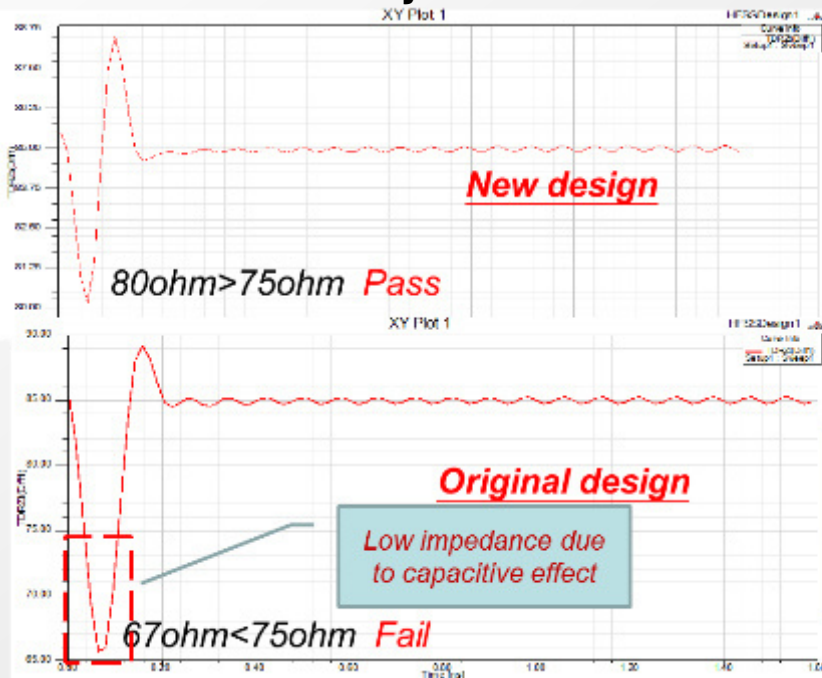
Signal integrity :

the capability to ensure the quality of signal which pass through channels



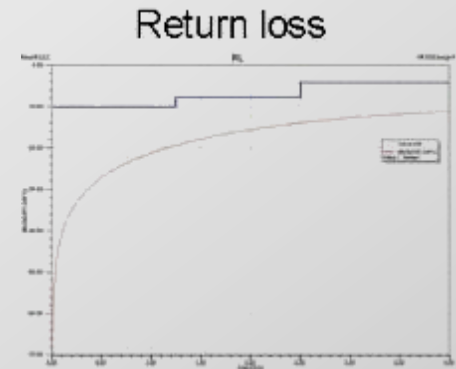
Full Maxwell equations are applied in signal integrity analysis for high speed application.

Full EM-wave analysis

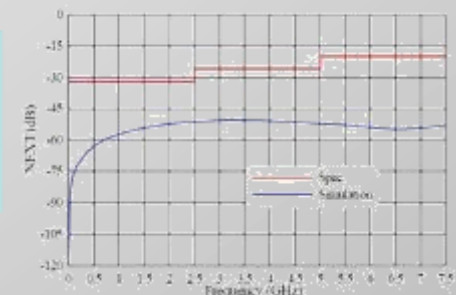


Revised model removes the redundant capacitive effect and appears proper impedance behavior.

- Patented structure
- Flexible GND assignments

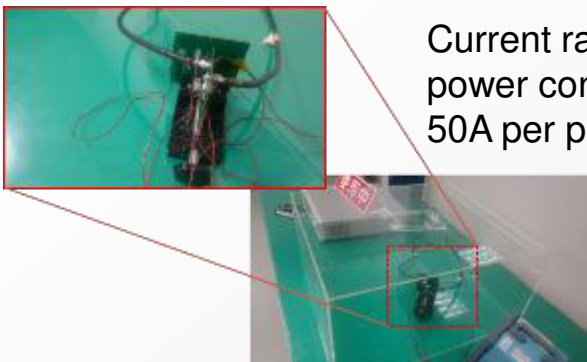


NEXT



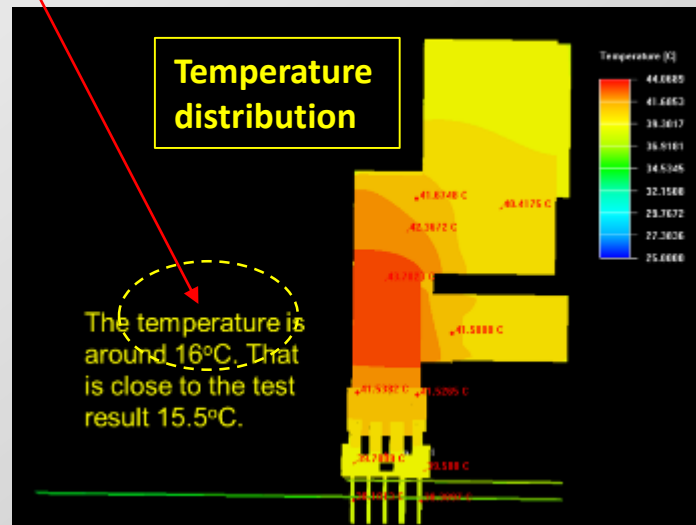
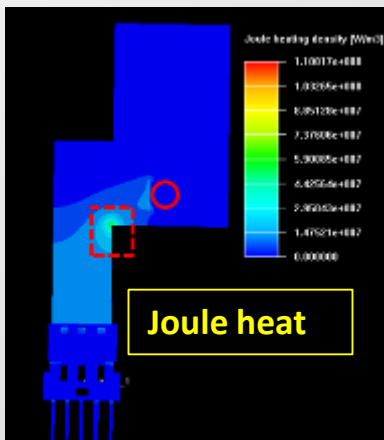
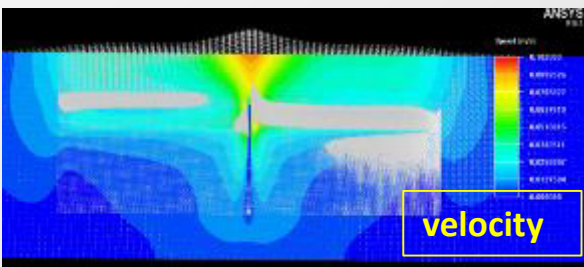
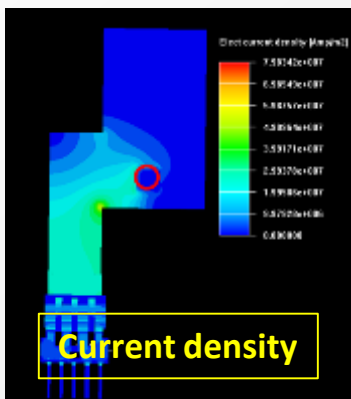
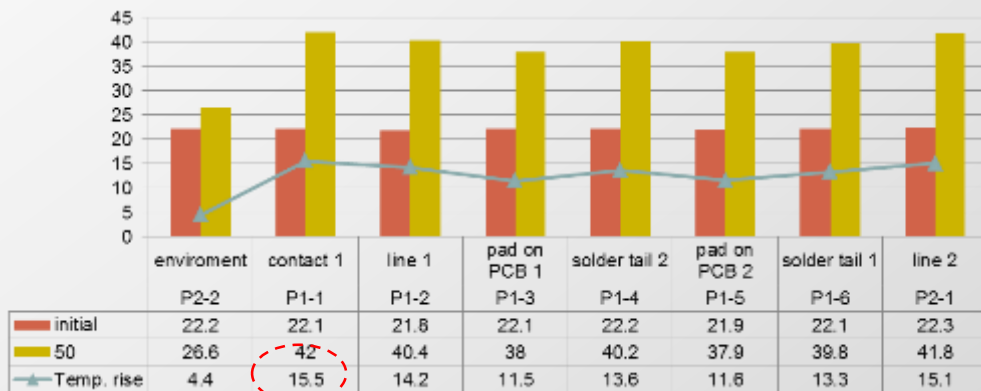
In general, FPC connectors always appears low impedance due to redundant spring structures.

High Power Connector Capability



Current rating for high power connector with 50A per pin

ACES provide you safer design!



Test summary

X RAY

CT software(VG Studio max 3.2):

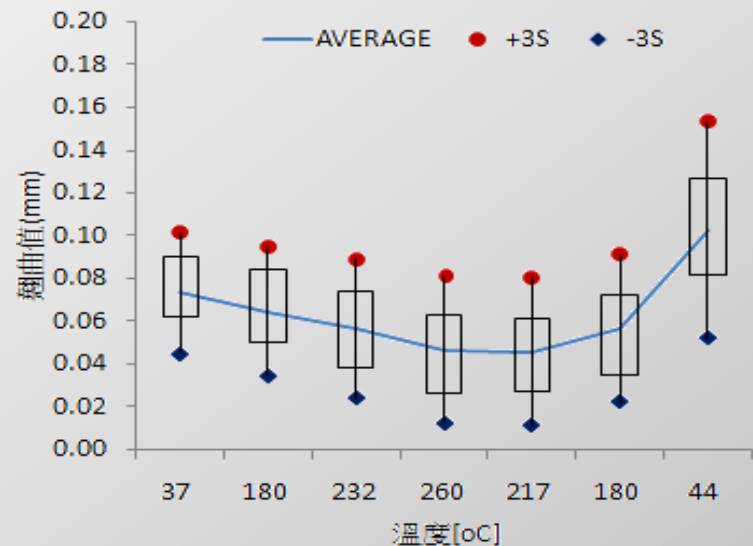
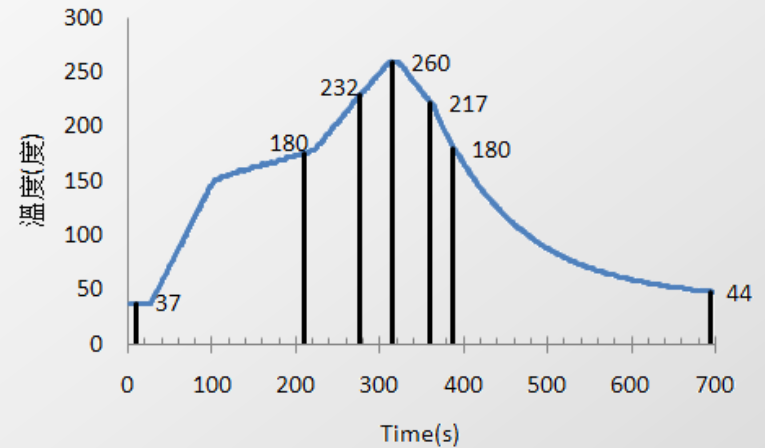
1. CT and 3D Image inspection
2. Nominal/Actual comparison
3. Wall Thickness Analysis
4. Porosity/Inclusion Analysis
5. Reverse Engineering



Heat Tester

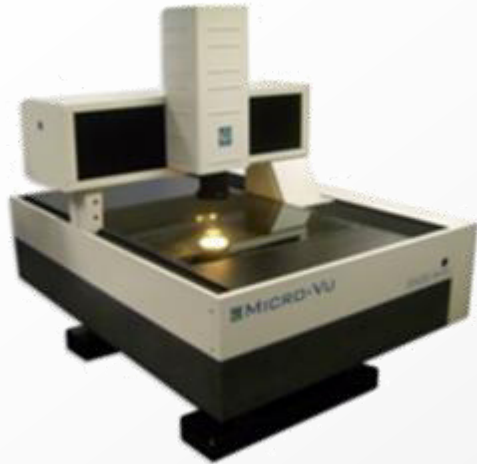
Test the amount of warpage of the product at each temperature in the reflow oven to ensure that the product can go smoothly.

NIKKE NZH-1000



Automated Vision Measuring Machine

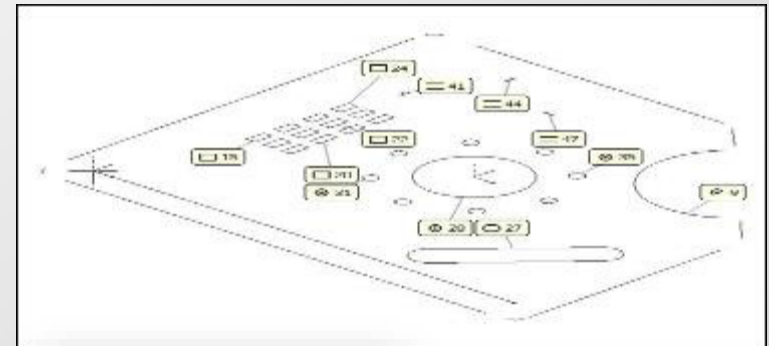
Micro Vu EXCEL 501HC



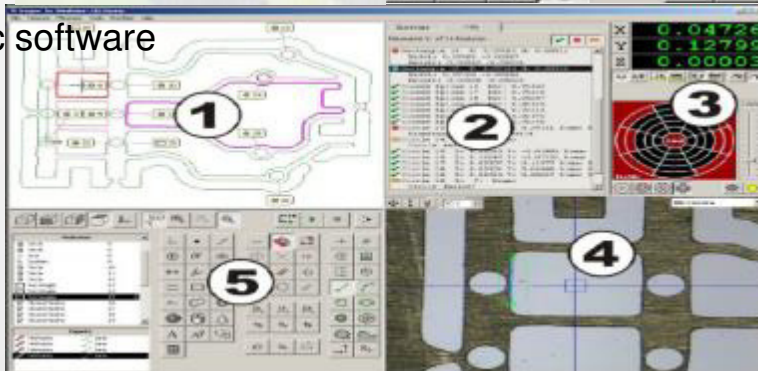
- ❑ 40 segment LED lighting source adjustment
- ❑ InSpec software
- ❑ 3D graphics and instant relative position display
- ❑ SPC software linkage

40 segment LED lighting source adjustment

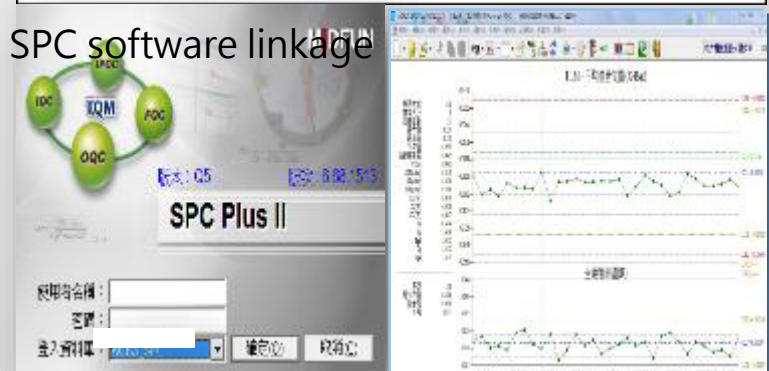
3D graphics and instant relative position display

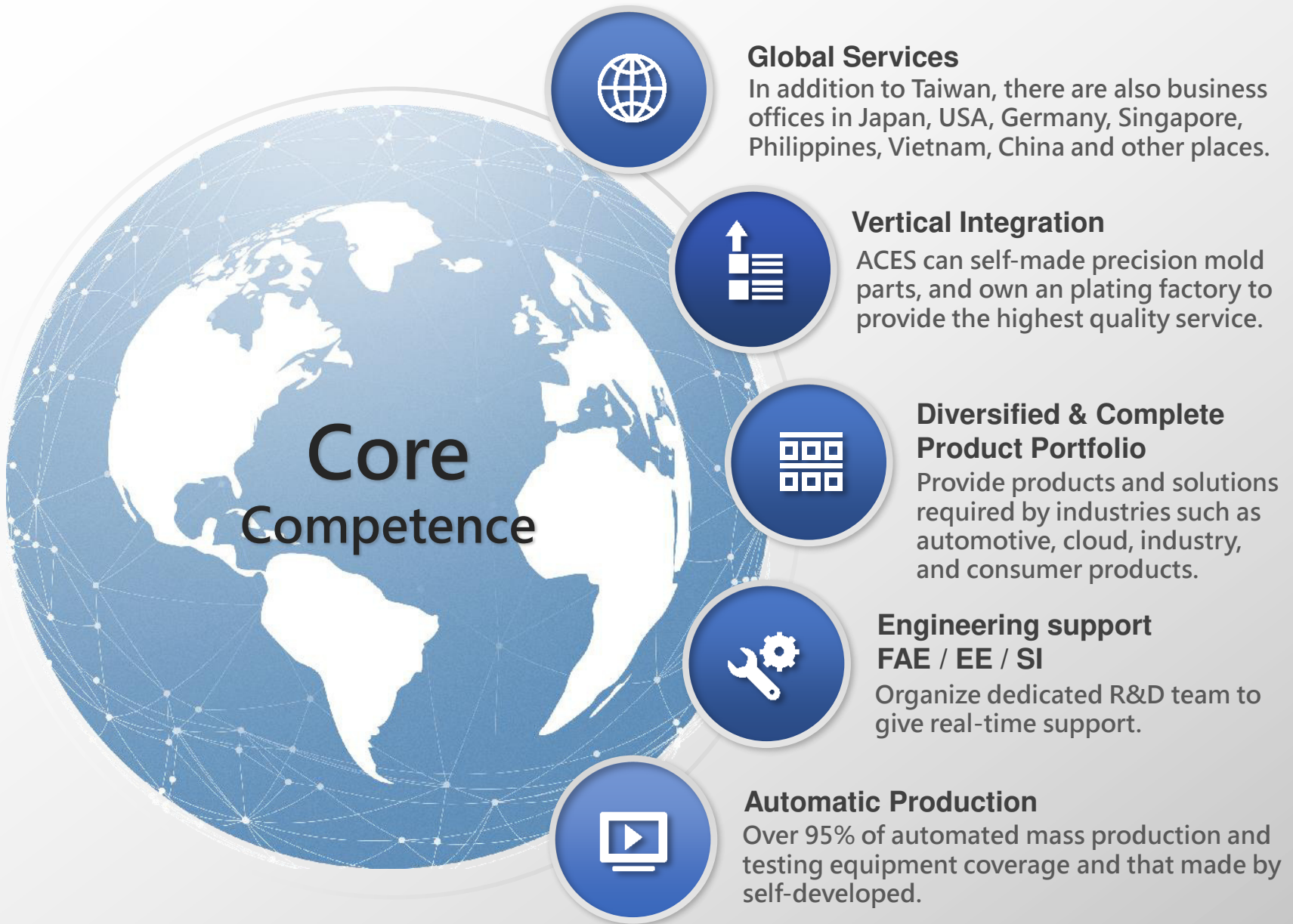


InSpec software



SPC software linkage

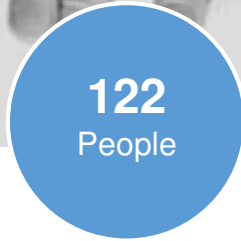






Manufacturing force

- Equipment Engineer
- Process Engineer
- Industrial Engineer



Quality Assurance

- A.P.Q.P Engineer
- Lab Engineer
- Quality Control Engineer



R&D Power

- Product Design Engineer
- Tooling Development Engineer
- FAE
- EE
- SI engineer





Industrial & Industry 4.0
IPC
Medical



Cloud Computing
Communication
Server



Automotive
Transportation



Laptop Computer
Consumer Electronics

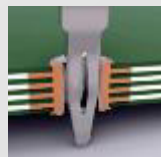
Achieve Your Ideas.





Industrial & Industry 4.0 / IPC / Medical

Focus on existing customers
with industrial BU



Press Fit



**LOCK type
Connector**



Terminal



Cloud Computing & Communication and Server

Focus on existing customers, and get qualification from brand customers.



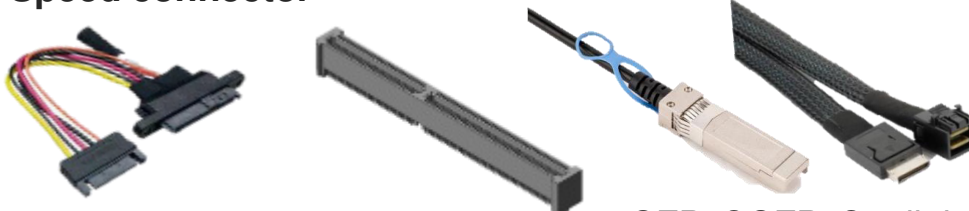
Power Connector



RF Connector



High Speed connector



Shielding



High Speed Cable Assembly

PCIe 4.0

SFP, QSFP, Oculink....



Automotive / Transportation

Focus on existing customers,
also expand customer bases.



High Power Connector



**Reverse Parking Sensor
Connector & Cable Assembly**



**Body Control Module
Connector**



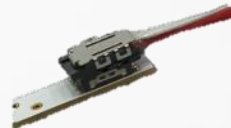


Laptop Computer / Consumer Electronics

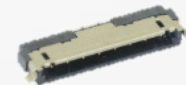
Brand Customers in America and Mainland China.



**FPC
Connector**



**Slimmate
connector**



Wafer



IDC Female



PRODUCTS

Achieve Your Ideas.

Aces offers extensive design, engineering and manufacturing to serve variant products in industries that include computer, computer peripherals, business equipment, home entertainment and telecommunications.

Product Overview

Connectors

Wire to Board Connector

- ◆ Computer Interface
- ◆ NB/Tablet, LCD TV, Network
- ◆ Battery Pack



FPC/FFC Connector

- ◆ LCD TV/NFC Reader
- ◆ NB/Tablet



Board to Board Connector

- ◆ NB, Tablet, Smart Phone
- ◆ Mobile PC, DSC, DVC



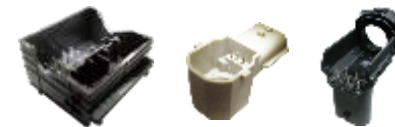
I/O, High Speed, High Power Connector

- ◆ RF/M.2/Server
- ◆ SAS/USB/HDMI



Customized Component

- ◆ Automobile
- ◆ Green Energy/ Smart Meter



Product Overview

Cable Assembly

Industrial Cable Assembly

- ◆ Computer Interface
- ◆ AC Plug Cable Assembly → 40.66%



Inner Cable Assembly of NB

- ◆ Micro Coaxial
- ◆ LVDS Cable Assembly → 38.50%



Dongle

- ◆ Dongle Application → 11.03%



Data Communication

- ◆ Data Communication
- ◆ Audio & Video Cable Assembly → 7.29%



Others

- ◆ Transformer
- ◆ Coil Winding
- ◆ Choke
- ◆ Automotive Wire Harness → 2.52%



Product Overview

Stamping

I/O Shielding

- Computer Interface
- NB/Tablet, LCD TV, Network
- Battery Pack



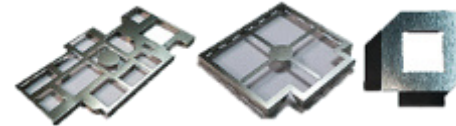
Bracket

- LCD TV/NFC Reader
- NB/Tablet



CPU Fan Bracket

- LCD TV/NFC Reader
- NB/Tablet



EMI Shielding

- NB, Tablet, Smart Phone
- Mobile PC, DSC, DVC



MB Tray

- RF/M.2/Server
- SAS/USB/HDMI



Product Overview

Stamping

Metal Case

- Computer Interface
- NB/Tablet, LCD TV, Network
- Battery Pack



Metal Case Chassis Assembly

- LCD TV/NFC Reader
- NB/Tablet



Metal Case Chassis Assembly

- LCD TV/NFC Reader
- NB/Tablet



Metal Case Chassis Assembly

- NB, Tablet, Smart Phone
- Mobile PC, DSC, DVC



Metal Case Chassis Assembly

- RF/M.2/Server
- SAS/USB/HDMI



Product Overview

Genesis

**High Speed
Cable Assemblies**



**High-Speed
Connector & Cage**



**RF Connectors
& Cable Assy**



**EMI / EMC Board
Level Shielding (BLS)**



**Low speed cable
Assembly & harness**



**Power and low
speed connectors**





Application

Achieve Your Ideas.

Aces offers extensive design, engineering and manufacturing to serve variant products in industries that include computer, computer peripherals, business equipment, home entertainment and telecommunications.

Product Application

BTB Conn.



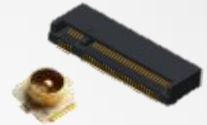
FFC/FPC Conn.



**WTB Conn.
LVDS Conn.**



**M.2 Conn.
RF Conn.**



USB 3.0 HDMI Conn.



Docking Conn.



Tablet PC Market





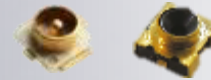
BTB Conn.



FPC Conn.



RF Conn.



WTB Conn.

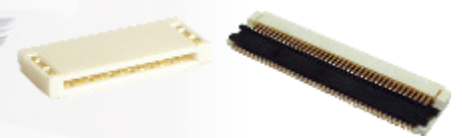




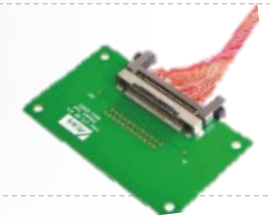
CCFL Conn.



FPC Conn.



WTB Conn.



Power Conn.



BTB / M.2 Conn.



SAS Conn.



Product Application

GPS



Multimedia Device Conn.



High Voltage Conn.



Smart Sensor Conn.



Reverse Parking Sensor Conn.



Body Control Module Conn.



ECU Conn. for TPMS



Automotive Market





CSR

Achieve Your Ideas.

Aces offers extensive design, engineering and manufacturing to serve variant products in industries that include computer, computer peripherals, business equipment, home entertainment and telecommunications.

Corporate Social Responsibility

We have donated 40 ambulances from 2006 to 2018, and these ambulances are providing services everywhere in Taiwan. We also donated 8 book carts for kids in rural area in 2019 to 2020.



Prof. Muhammad Yunus made a speech at ACES Hall in National Center University



Corporate Social Responsibility



CSR

Achieve Your Ideas.



Thank You !

Achieve Your Ideas.