



Simula Solution

2018/02/01



simula

Simulagenda

- Company profile
- Product portfolio
 - Consumer/Wearable/IOT
 - Industry
 - Automotive
 - Medical
- Capability

Simula solution provider

Simula Technology Inc.

Established	1990
Public in TW	2009 On public No. 3511
Chairman CEO	Lucille Yu
Headquarter	Taiwan
Number of employee	800
Business Model	JDM(50%) /ODM(30%) /OEM(20%)
Main products	Connector & Cable Assembly(Dongle, Adapter, Hub)
Specialized in	Waterproof Solution, High frequency Solution, Customized Solution
	ISO9000/14000/ 13485 • TS16949 • OHSAS18001

Quality Assurance Certificate



Europe Location ● ●
Munich, Germany

Italy Location ● ●
B.C.E. S.r.l., Sassuolo (MO)

USA Office ● ●
Fremont, California

Shenzhen Facility ● ● ●

Taiwan Headquarters ● ● ●



- Manufacturing
- Research & Development
(FAE service for ESI support)
- Sales

Our Goal

- To be your specialist from connector, cable to accessory
- Be the best on small things
- Technology Leading design capability
- Global logistic support
- Quick response on customization support

Our attitude

- Precise and Comprehensive simulation before fabrication
- Wide range of products from components to system level
- Total solution study and comparison with the market
- Rigorous measurement for each sample build

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Consumer



Industrial



Medical



Automotive



Product portfolio



- Audio Jack
- DC Jack
- USB connector
- Waterproof connector
- USB Type-C
- IO Connector
- Cable assembly
- Wire Harness
- Adapter
- Dongle
- Dock



- M Series
- Custom product



- Pogo Series
- Wire Harness
- Custom product



- Fakra Series
- OBD2 Series
- USCAR Series
- IDC Series
- M Series
- ADAS Series



Type-C Product

Connector



USB 3.1 Type-C solution and Waterproof series

Docking



USB 3.1 Type-C to HDMI+RJ45
+SD+2xUSB 2.0+USB 3.1 Type-C



USB 3.1 Type-C to HDMI
+RJ+ USB 2.0+USB-C PD

Cable



USB 3.1 Type-C to USB 3.0 A



USB 3.1 Type-C to
USB 3.1 Type-C

Adapter

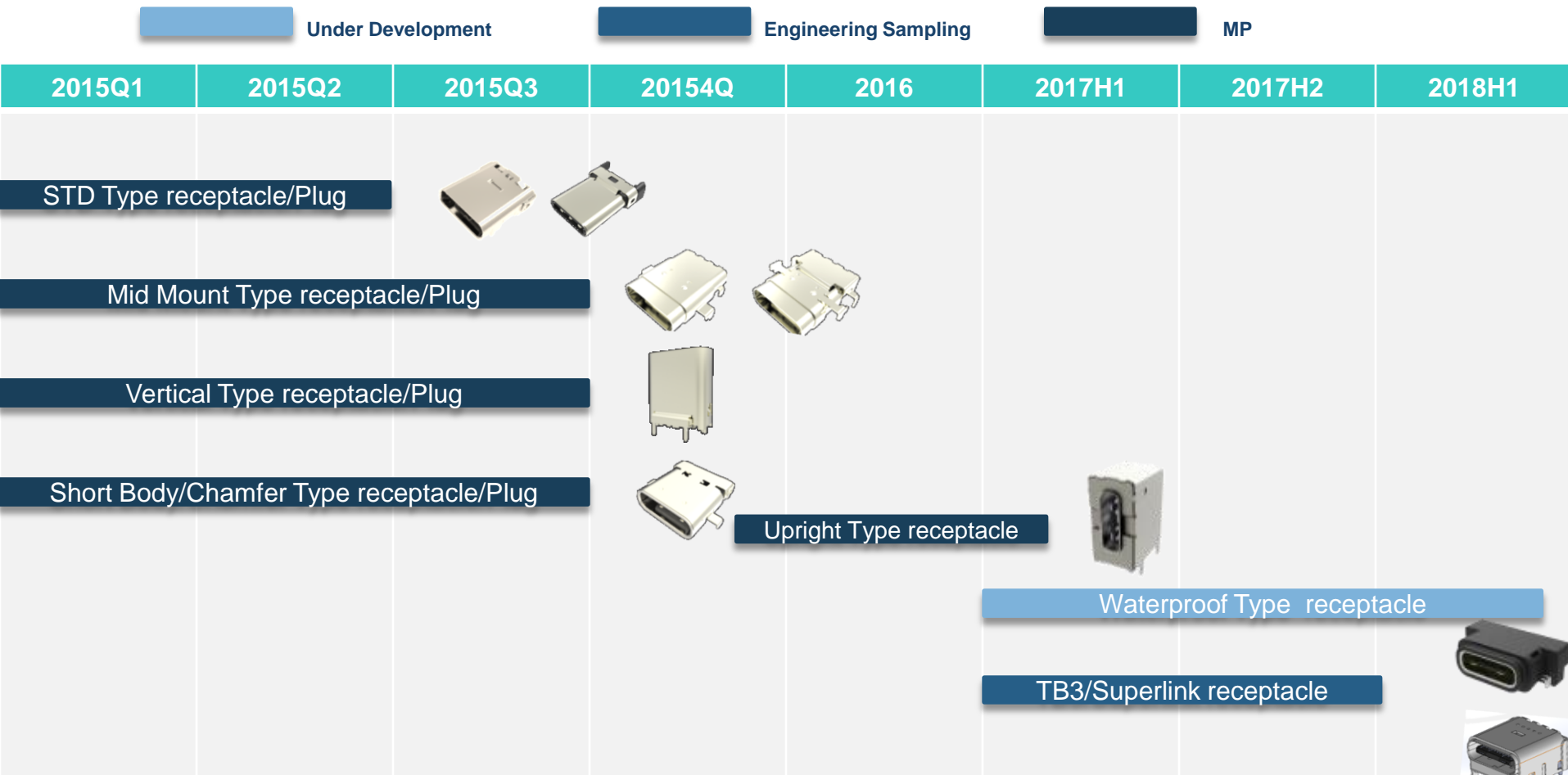


USB 3.1 Type-C to VGA



USB 3.1 Type-C to HDMI

Product roadmap_Type-C Connector



Product roadmap_USB-C Accessory



Under Development



Engineering Sampling



MP

Current Product		2017 Q4	2018 Q1
USB-C to GbE			
USB-C to VGA			
USB-C to DP 1.4			
USB-C to HDMI 1.4			
USB-C to HDMI 2.0b			
USB-C to HDMI1.4 +PD			

Product roadmap_USB-C Accessory



Under Development



Engineering Sampling



MP

Current Product

2017 Q4

2018 Q1

USB-C to
USB-A*3+PD



USB-C to
HDMI 1.4+VGA+PD



USB-C to
USB-A*2+HDMI1.4+PD



USB-C to
HDMI1.4+RJ+PD



USB-C to
USB-A+HDMI1.4+RJ+PD



Product roadmap_USB-C Accessory



Under Development



Engineering Sampling



MP

Current Product

2017 Q4

2018 Q1

USB-C to USB-A*2+Micro SD
+SD/MMC+ HDMI1.4



USB-C to USB-A*4+Micro SD
+SD/MMC+ HDMI1.4+GbE RJ+PD



USB-C to HDMI+RJ+SD+2*USB-A+PD



USB-C to DP 1.4+PD

USB-C to HDMI 2.0b+PD



USB-C to VGA+PD

USB-C to
USB-A*2 + USB-C*2



Product roadmap_DP 1.4 MST Hub



Cable

Type C cable solution



The USB-C to USB-C cable is all you need for power, video, and data transfers across multiple devices. Your computer, laptop, mobile phone, and hard drive will all use one type of cable. With USB-C, you'll no longer need to carry around clunky AC adapters, as all your devices will be powered and charged using USB-C. Experience up to 10 Gbps transfer speeds, up to 20X faster than USB 2.0 (480Mbps),

Type-C to Type-C / USB2.0 / Micro USB / USB3.0.....

Adapter for 4K@60Hz DP1.4 display and Type-C charging

■ Features

- DP1.4 output
- Max Resolution: 4K@60Hz
- PD downstream charging up to 5V/3A
- PD pass through charging up to 20V/3A
- Billboard

■ Schedules:

Engineer Sample: Q1,2018



Thunder

Adapter for 4K@60Hz HDMI2.0b display and Type-C charging

■ Features

- HDMI2.0b output
- Max Resolution: 4K@60Hz
- HDCP 2.2
- HDR Support
- PD downstream charging up to 5V/3A
- PD pass through charging up to 20V/3A
- Billboard

■ Schedules:

Engineer Sample : Q1,2018



Adapter for WUXGA 1920 x 1200@60Hz display and Type-C charging



■ Features

- VGA output
- Max Resolution: 1920 x 1200@60Hz
- PD downstream charging up to 5V/3A
- PD pass through charging up to 20V/3A
- Billboard

■ Schedules:
ES: Q1,2018

Aurora

Type-C Hub to expand your port connectivity and usability

■ Features

- 2 x USB-A (10 Gbps) output ports (BC1.2/Samsung/Apple charging)
- 2 x USB-C (10 Gbps) output port
- PD downstream charging up to 5V/3A
- PD pass through charging up to 20V/3A
- Cable length 0.15m
- Billboard



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■ **Schedules:**
Engineer Sample: Q1,2018

DisplayPort Dongle/Adaptor



CB803E-4000-10F

- mDP to DP
- DP 1.4
- HBR3 support

DJ801N-1000-10F

- DP to HDMI
- DP 1.4
- HBR2 support

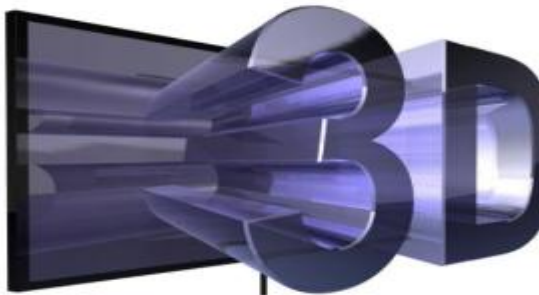
DJ802K-4000-10F

- mDP to DVI
- DP 1.1
- HBR support

HDMI Solution

Features

- Ethernet Channel (100M)
- Audio Return Channel
- 3D support
- 4K x 2K @ 60Hz
- Color spaces
- 4 Type Connector (Type A ~ D)



■ We are capable to produce HDMI 2.0 cables with non-memory feature. The cable will be more softer and won't be easily marked after 180° fold.

■ According to different requirements from customers, we can offer better solutions of cable structure & cable OD. We can make HDMI 2.0 cables with smaller OD and customized length & ID.

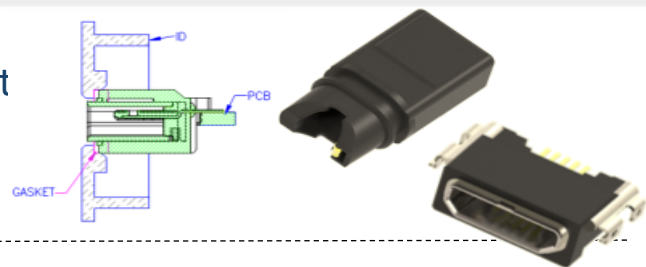
Waterproof Solution

Component Level

- Insert Molding
- Mylar (Support up to IPX3)
- Adhesive (Required from IPX4)

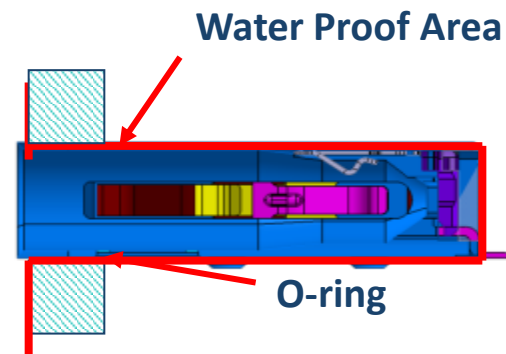
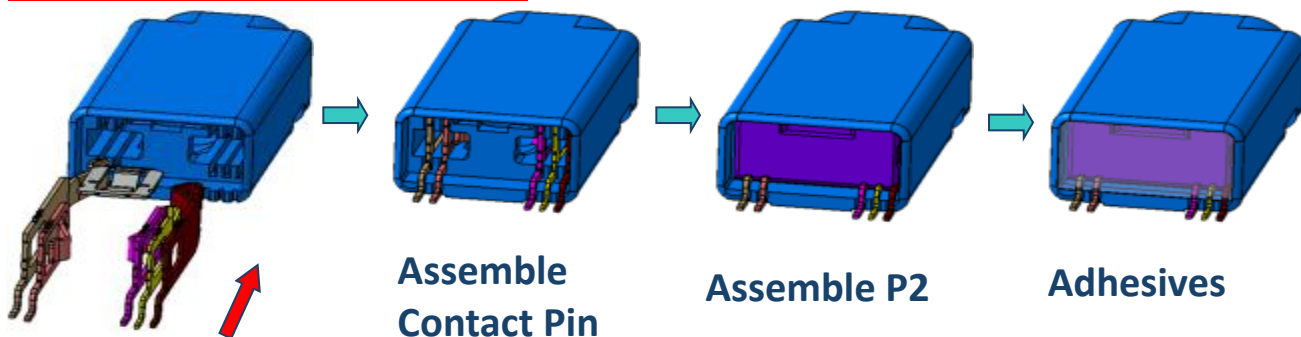
Device Level

- Device Case Mechanical Support (O-Ring)



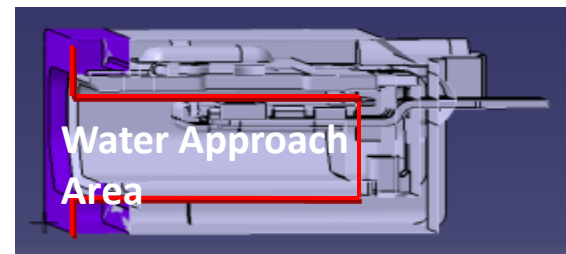
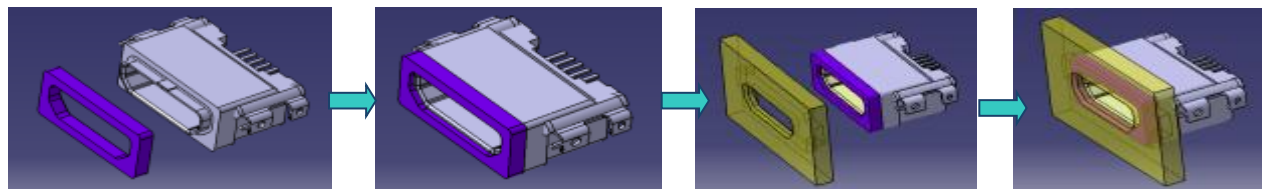
Waterproof Audio Jack Demo

Example: WP3E8A/WP3E7C/WP3E7D/WP3E8B



Waterproof uUSB Demo

Example: WP812B/C/D



Product roadmap_Charger Cable/Conn./Module



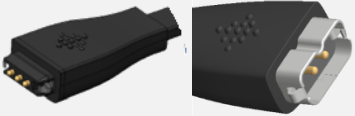

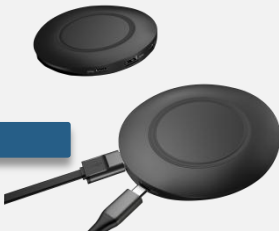
Under Development



Engineering Sampling



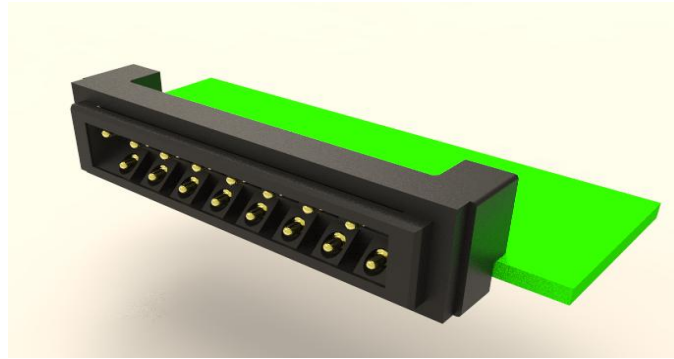
MP

Current Product	2017	2018
 <p data-bbox="112 398 363 431">Metal-Fixed Type</p>		
 <p data-bbox="542 543 1267 575">Plastic-Fixed Type[Clip/Box/Double Injection Type]</p>		
 <p data-bbox="591 783 1383 816">Magnetic Type[Custom magnetic force/High Frequency]</p>		
	<p data-bbox="1315 916 1522 948">Wireless Type</p>	

Pogo Magnetic Cable



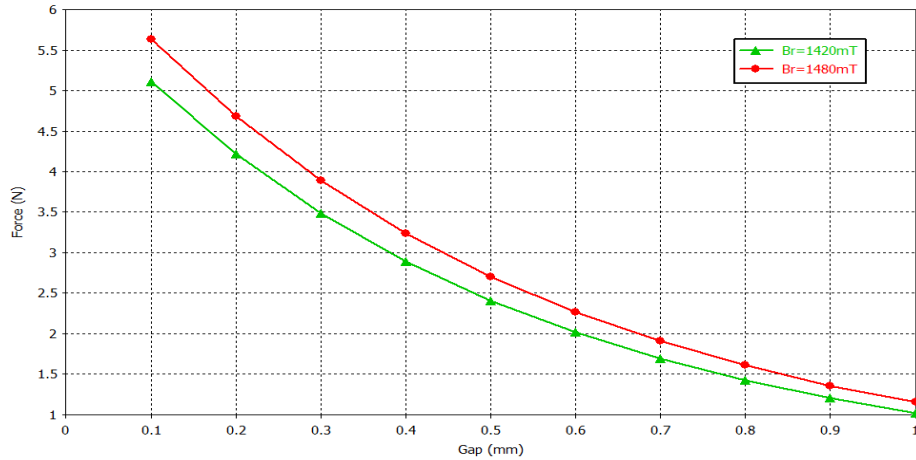
High frequency Solution



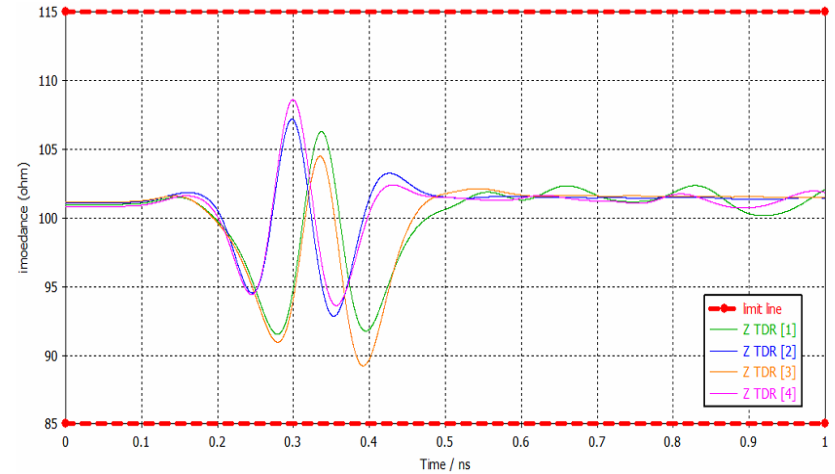
Waterproof Solution



Customized Solution



Magnet Analysis



High Frequency Analysis

Industrial product- M Series



M5/M8/M12

- Waterproof Connectors
- Different type to satisfy customer needs.
- Widely used for sensor connection in Industrial Machinery ,Factory Automation and outdoor application.

Automotive Solution



Fakra Series

Cable for ADAS system



Stacker engine wiring harness

AV/USB Series



Cable for camera system

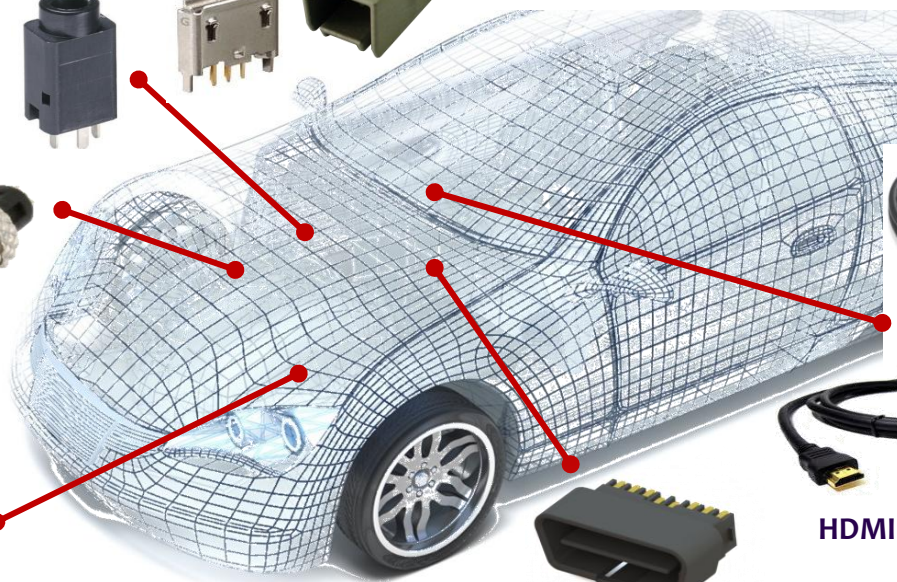
M Series



Cable for battery Series



DE Series



MHL Series



HDMI Series



OBD II Series



Fakra Solution

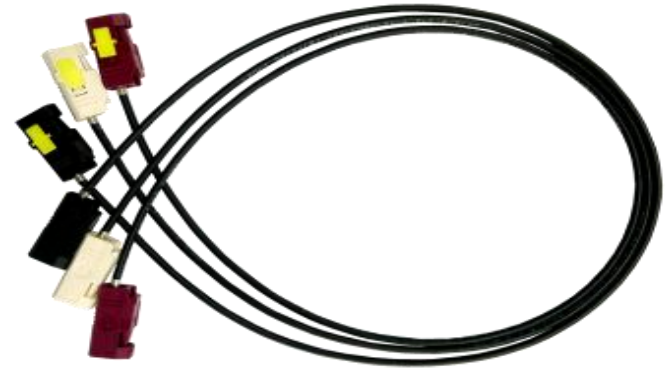
Applications

- Radio antenna
- GPS telematics or navigation
- GSM mobile communication
- Remote Vehicle Diagnostics
- Infotainment Systems



Features

- Fulfill the tough requirements of the automotive industry
- 14 different mechanical and color codes
- Plastic housing with locking feature and clicking noise
- Usable on several coaxial cables (RG174, RG178, RG58...)
- Available in multiple connector configurations (Vertical, Right Angle, PCB design...)



OBD II Solution

OBD I is a diagnostic monitor, demanded to built right into all vehicle.

Basic functions :

- Monitor emissions condition.
- Identify failure problems.
- Record vehicle's performance.
- Access to vehicle's computer database.



IDC Solution

Features

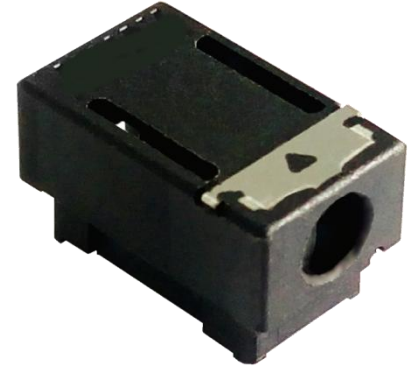
- Simple strip, insert, and press down termination process
- Industrial operating temperature range for harsh environments
- Can replace hard solder connections including expensive multi-step standard coax connector in lower frequency applications

Applications

- Micro miniature RF
- Meters

Spec:

- Frequency: DC to 6 GHz
- Impedance: 50Ω
- Operating Temperature Range : -40°C to +125°C
- Applicable Coaxial Cable: RG174, 1.5DS, 1.5CS



USCAR Connector



Healthcare Device Charge Cable



Power Charging Cable



Cable Application



Box Type



Snap Type



Clip Type



Different Dock Structure Design

Nursing Call and Body Healthcare Connectors/Cables



Application : Nursing Call

Feature:

- 6~10 Pin module design.
- Custom Magnetic force & raw cable
- Bending: 2000 cycle at angle 120°, 200g.

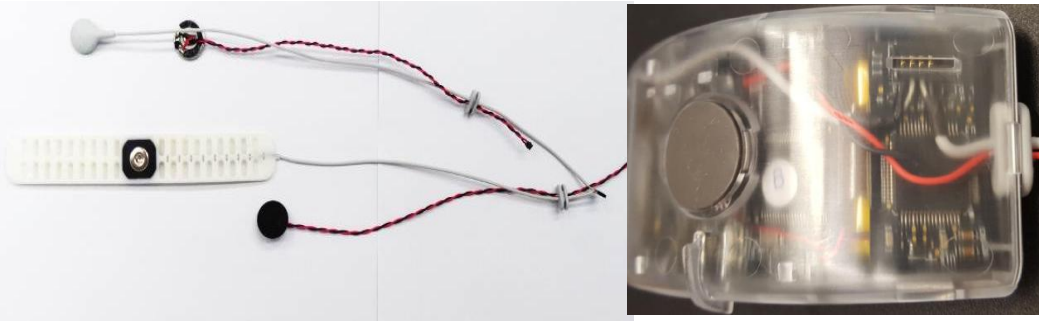
Application Full Body Healthcare

Feature:

- 6~10 Pin module design.
- Custom Magnetic force & raw cable
- Rating: 1A/30V



Blood Glucose Meters Connector



Application : Sleep detector

Feature:

- Double injection with different resin.
- Twist wire and special soft raw cable.

Application : Smart Phone in hospital

Feature:

- Custom ID/ Spring Design.
- Durability: 13,000 Cycle.



New Charger Cable for Smartwatch

Feature

- Custom ID/ Magnetic force
- System integration
- Custom magnetic force: Min. 350g
- Product life: 5,000 cycle
- Rating: 5V, 0.5A



Simulagenda

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- Capability

Capability

- Design Process
- Simulation Analysis
- Manufacturing Competiveness
- Test Equipment

Design Capability

Human Resource

ID designer, RD, EE

System

SmarTeam **PLM** System



Phase 1
Planning

Phase 2
Design

EVT
Phase 3
A Pilot Run

DVT
Phase 4
B Pilot Run

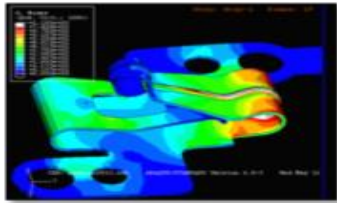
MVT
Phase 5
C Pilot Run

Phase 6
Mass
Production

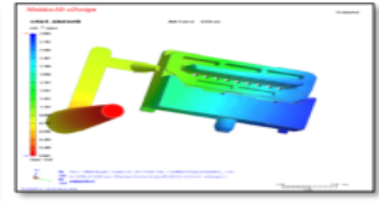
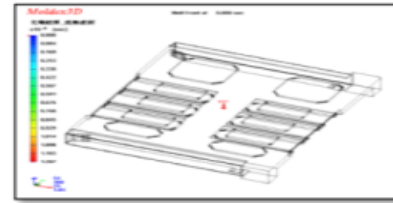
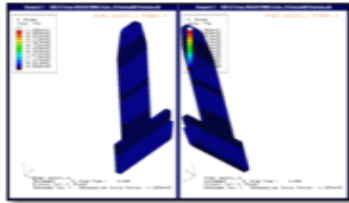


Apply Product Lifecycle Management (PLM) tools to manage products throughout various phases from project kick-off to shipping.

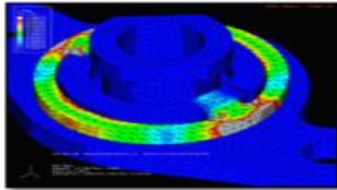
Simulation Analysis Competiveness



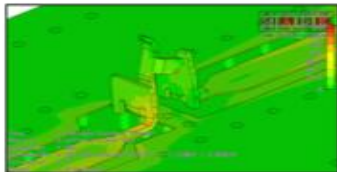
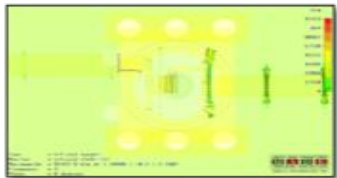
Abaqus



Moldex 3D



CST



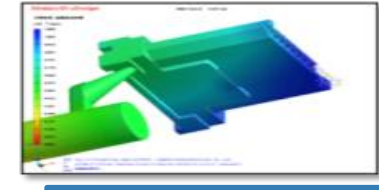
Mechanics
Analysis

Mold Flow
Analysis

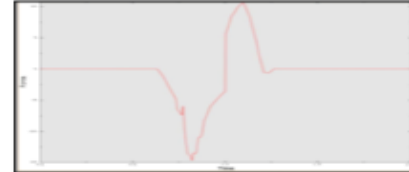
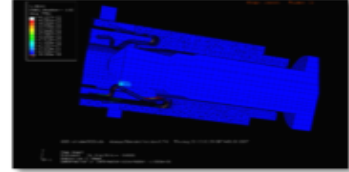
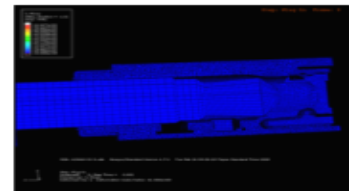
High
Frequency
Analysis

Product
Analysis

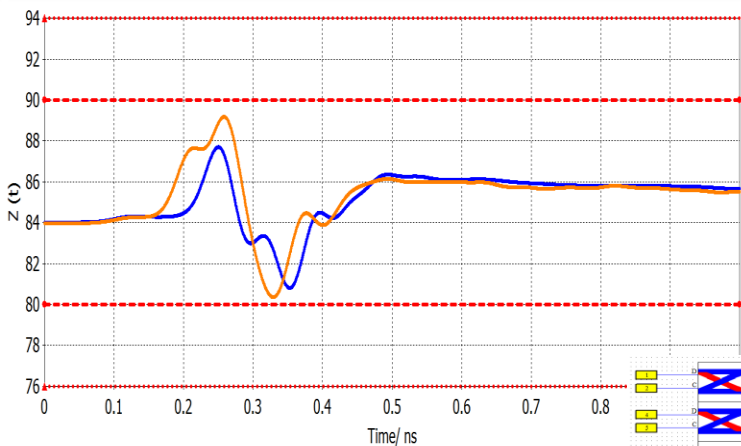
Computer Aided
Engineering



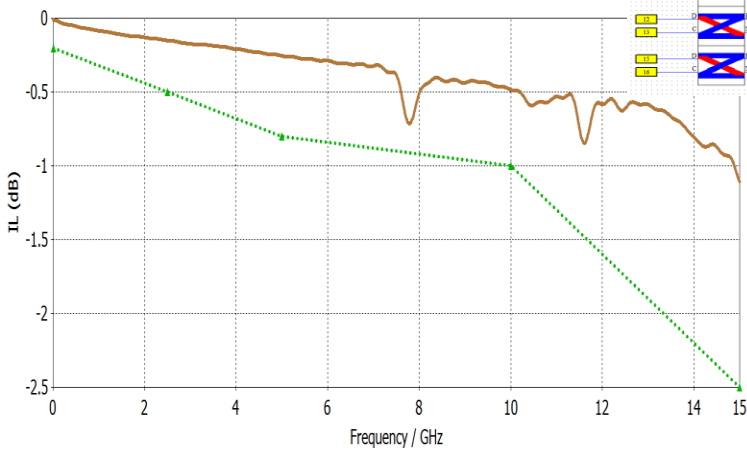
Abaqus



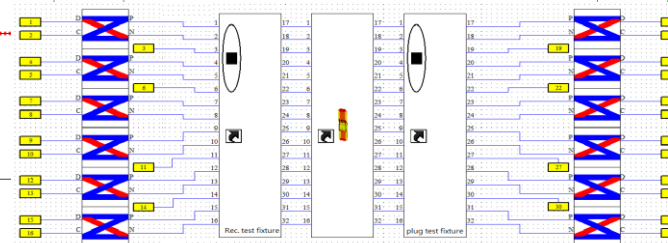
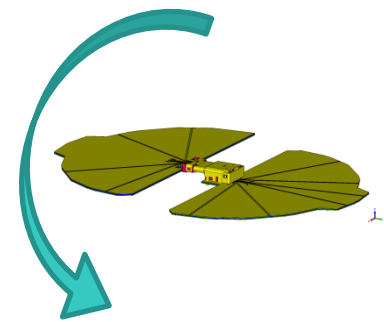
Full 3D EM analysis



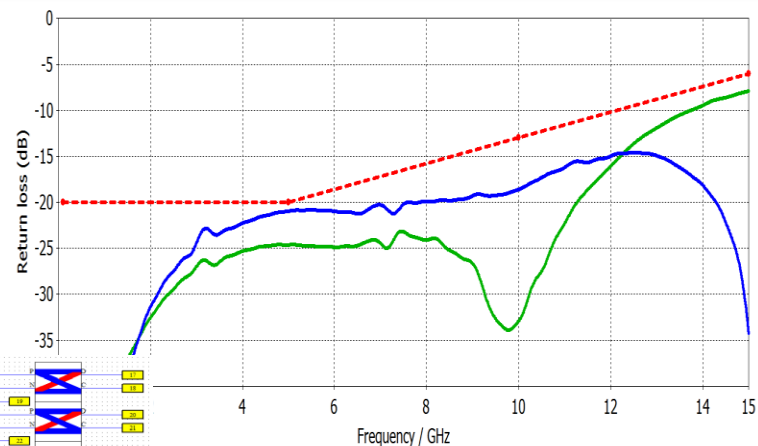
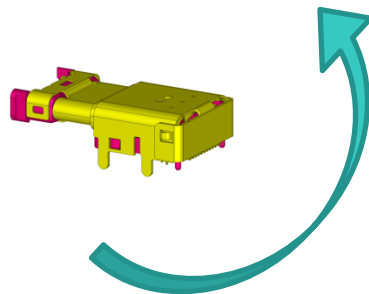
Impedance Profile



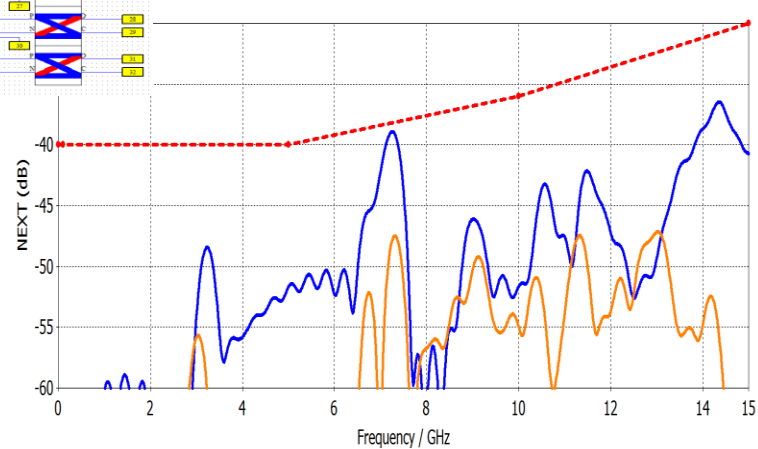
Insertion Loss



Fixture De-embedding



Return Loss

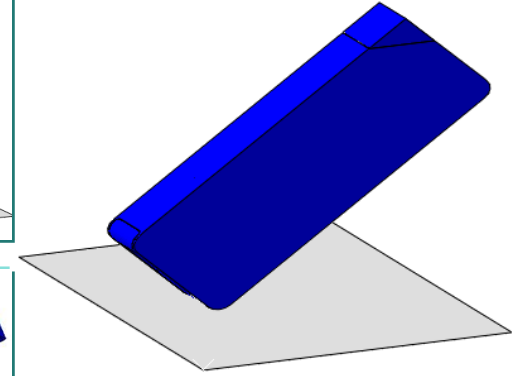
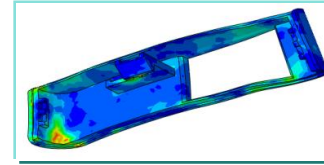
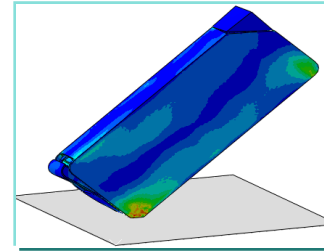
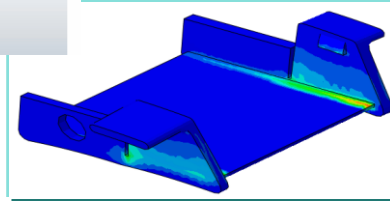


Near End Crosstalk

Stress & Structure analysis

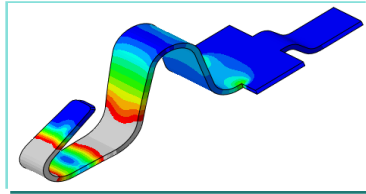
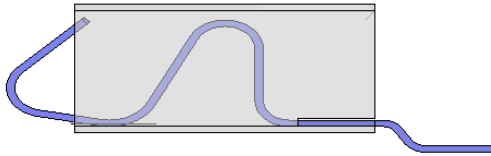
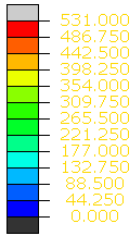


Insertion Simulation

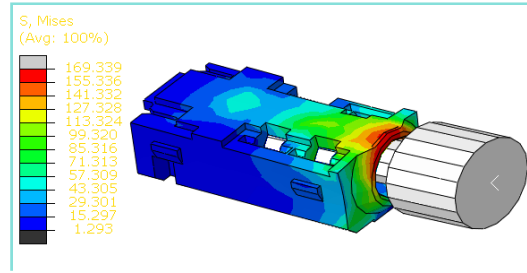


Drop Simulation

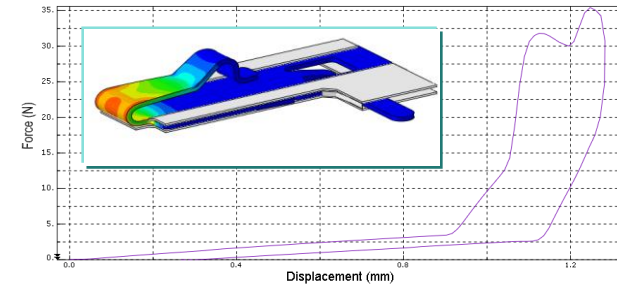
S, Mises
SNEG, (fraction = -1.0)
(Avg: 100%)



Battery Pogo - Deformation

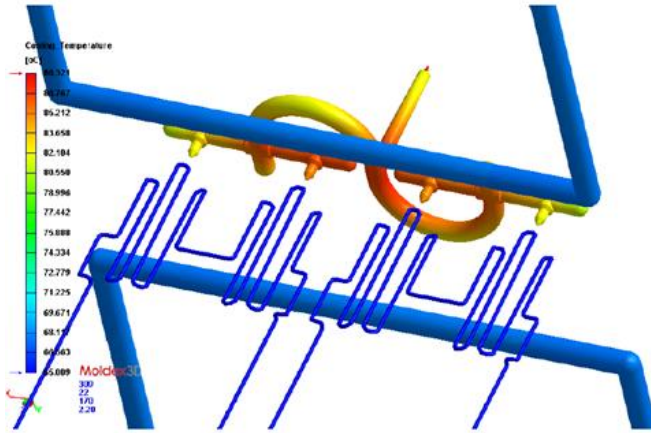


Side Load

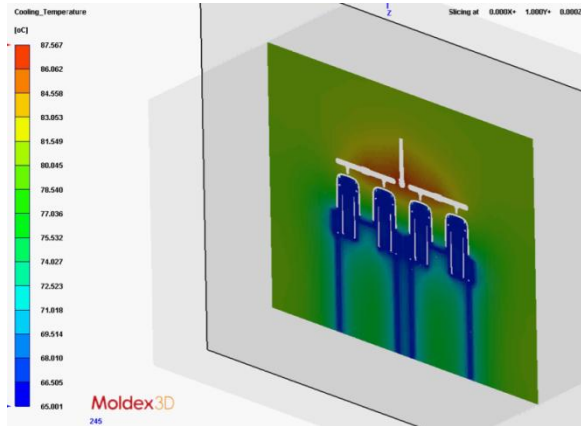


Normal Force

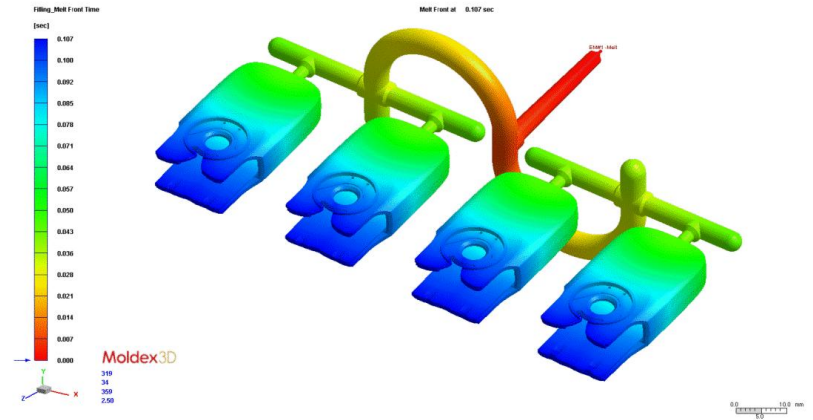
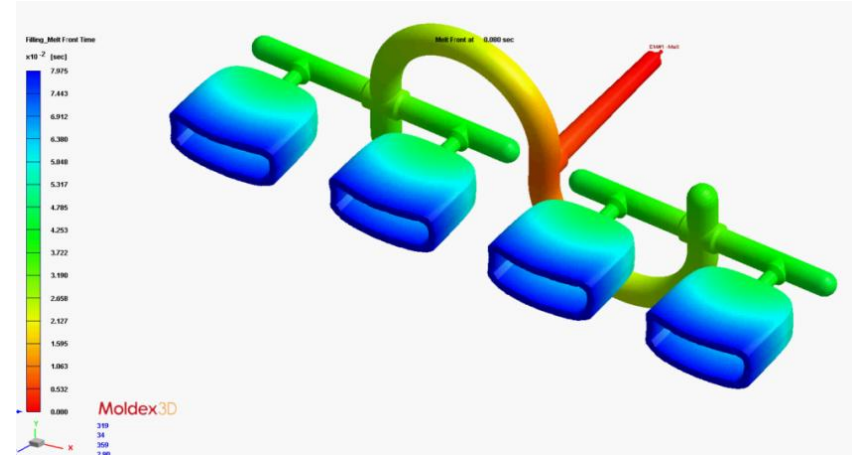
Mold Flow analysis



Alien Cooler Design

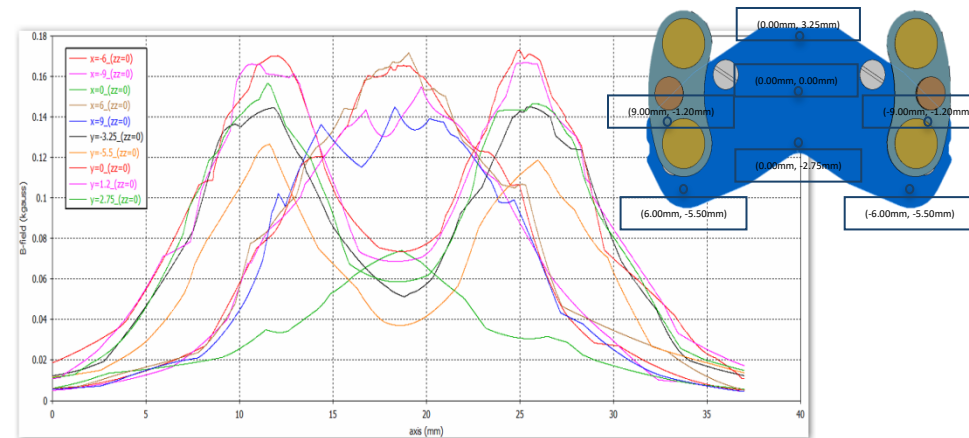
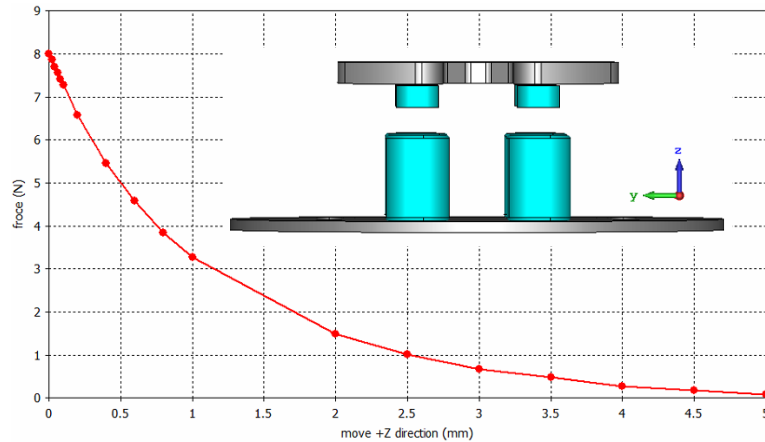
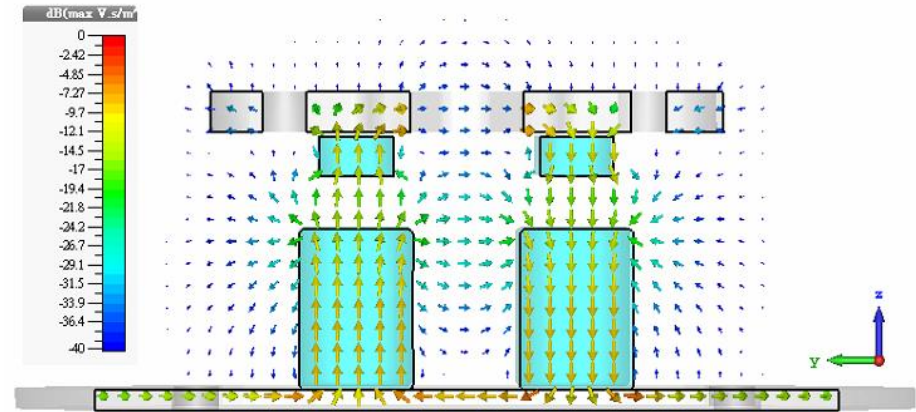
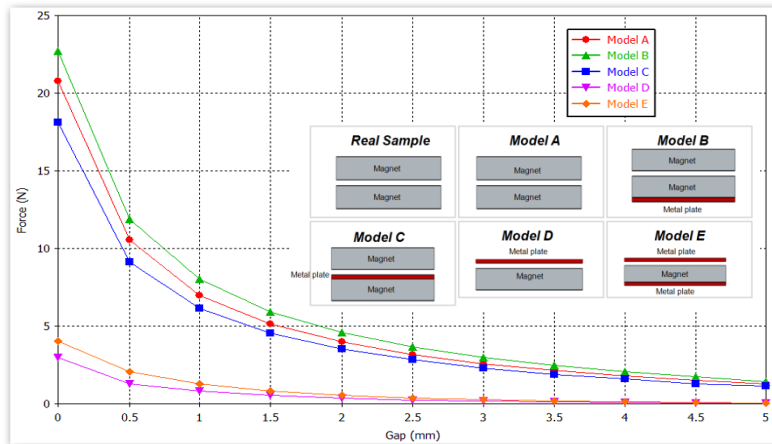


Temperature Distribution



Balance Flow

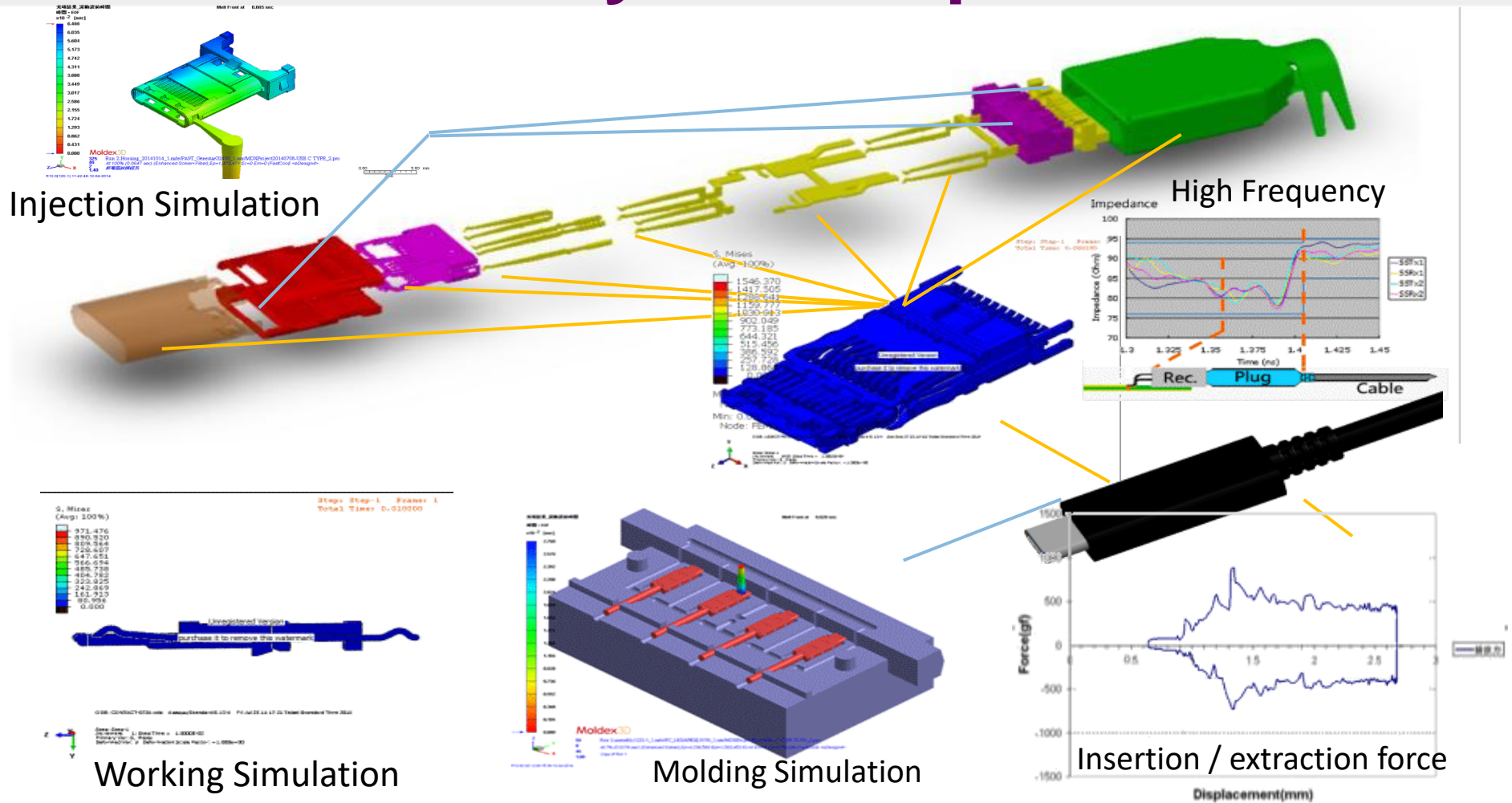
Static Magnet analysis



Magnetic Force

B-field distribution

Simulation Analysis Competitiveness



Vertical Integration Competiveness



16set 20-80 ton Aida, Kyori, etc...



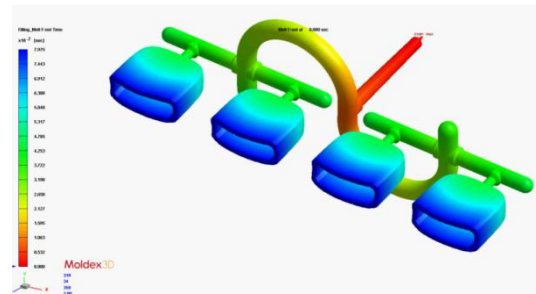
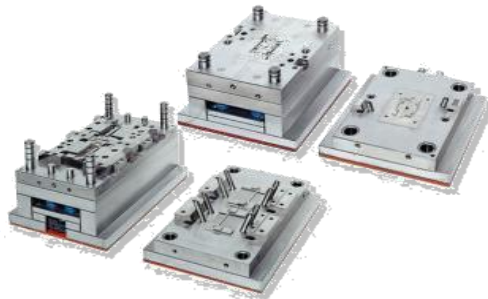
35set 15-150 ton Fanuc, Nissei, etc...

Capable for manual, semi-auto, fully auto,
and module automation.



Tooling Competitiveness

- Vertical integration in tooling. Precision tool design and process.



Wire Cutting



- Seibu ($\pm 0.002\text{mm}$)
- Sodick ($\pm 0.002\text{mm}$)
- 泰州 ($\pm 0.03\text{mm}$)

Optical Grinding



- Waida ($\pm 0.005\text{mm}$)

EDM



- Sodick ($\pm 0.005\text{mm}$)
- 亞特 ($\pm 0.02\text{mm}$)

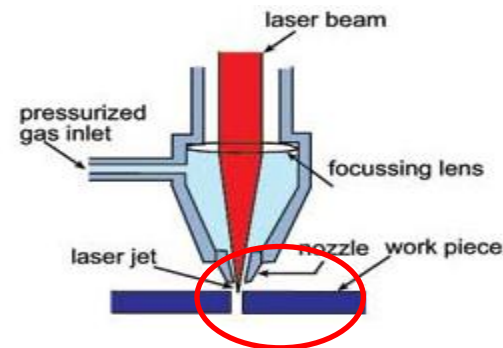
Cable Assembly Competiveness

Auto - removing the cable jacket

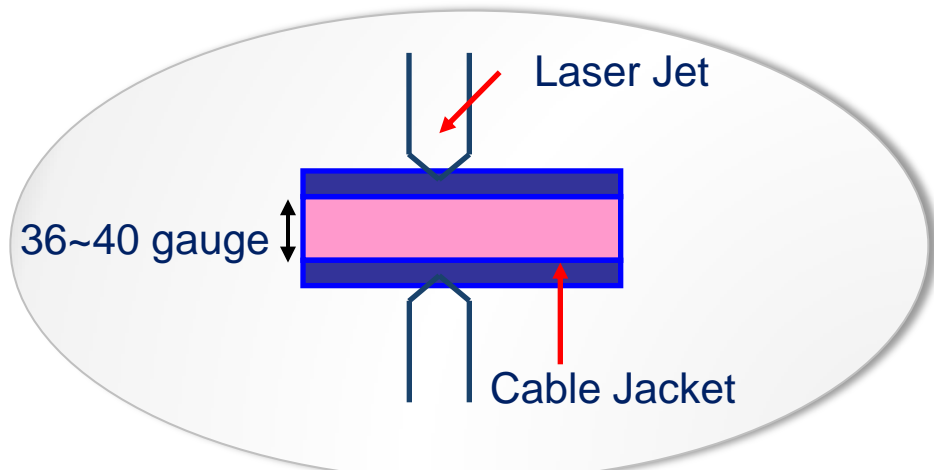
- Laser cutting because of the cable diameter only 36~40 gauge

Auto - soldering process

- Hot bar for HDMI D fine pitch 0.80 mm



Cable able to remove cable jacket above 36 gauge by using Laser Technology



Process by Laser

Cable Assembly Competitiveness



Automatic Wire Cutting,
Stripping Machines



Automatic Welding Machine



Automatic Soldering
Machine (Hot Bar)



Automatic Cutting Laser Machine



Soldering Process

Manual Soldering



IR Soldering



Hot Bar Soldering



Lab Equip - Electrical & Environment

Electrical Performance 電氣性能測試機台



Spring Force / Contact Resistance Tester 自動阻抗力機

Measure and record spring force and contact resistance of each spring at specific working height.

- Function: Spring Force Test (彈力測試)
- Contact Resistance Test (阻抗測試)



AC Source 電源供應測試儀

Make sure connector work successfully under the particular range of voltage and current

- Function: High Current Test (大電流測試)



Contact Resistance/Durability Tester 阻抗/壽命測試機

Life cycle testing for whole series products. Monitor the change of contact resistance during compression.

- Function: Life Durability Test (壽命測試)
- Contact Resistance Test (阻抗測試)



Single-Pin Contact Resistance/Lifetime Tester 單pin 阻抗/壽命測試機

Life cycle testing for single pin. Monitor the change of contact resistance during compression.

- Function: Life Cycle Test (壽命測試)
- Contact Resistance Test (阻抗測試)

Environmental Testing 環境測試機台



Thermal Shock Tester 冷熱衝擊機

Continuous environmental testing under the flashy cycle of extremely high and low temperature. To make sure the qualified electrical performance of material.

- Function: Highest and lowest temperature Test (高低溫檢測)



Salt Spray Tester 鹽水噴霧機

Checking corrosion resistance of gold-plated product. we can predict the suitability in use as a protective finish.

- Function: Oxidation Resistance Test (抗氧化測試)



Temperature & Humidity Chamber 恆溫恆濕機

To create repeatable environmental conditions for numerous product lines.

- Function: Environmental Test (環境測試)



Hot-Air Reflow Machine 全熱風回焊機

Simulate SMT process. Make sure gold-plated products and plastic materials keep same electrical performance and physical appearance. Do side force test for the pins mounted on PCB after Reflow machine.

Lab Equip - Mechanical

Mechanical Performance 機械/結構性能測試機台



Profile Projector 立式光學投影機

Measure the length, width, angle of products

- Function: Physical Inspection (外觀檢驗)



30X to 350X Measuring Microscope 30X至350X工具顯微鏡

Enlargement, photo, and high precision measurement.
Enlarge one part of product to check physical situation and provide effective analysis.

- Function : Physical Inspection (外觀檢驗)



X-Ray Plating Thickness Tester 螢光膜厚測試儀

Measure the thickness of plating and check the data fitting customer demand.

- Function : Plating Thickness Inspection (電鍍膜厚檢驗)



X ray fluorescence spectrometer (ROHS) X 射線螢光光譜儀 (ROHS)

Analyze or measure element kinds and content,
to test the content of poisonous and harmful substances

- Function: ROHS Compliance

X-ray Inspection System

- Non-destructive investigation
- Dimension characterization for assembly

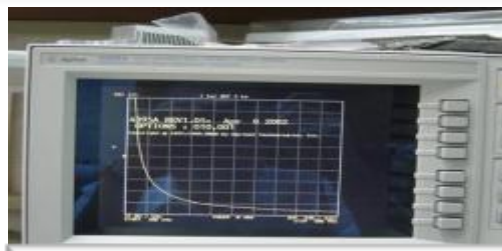


Lab Equip - Static/Dynamic

Static/Dynamic Performance 靜動態功能測試機台



Arbitrary Wave Form Generator



Networking Analyzer



Package Loss Test Machine



Scope Machine



Hi Pot Test Machine



LCR Meter

- Efficient Technical Support
Static Function

- Insertion Loss
- Return Loss
- Cross Talk
- CMRR
- Inductance
- Capacitance
- Hi-pot/IR Test

Dynamic Function

- EMI
- IEEE
- ISN
- Surge/ESD

Customers Worldwide

North America



Europe



Korea



Japan



Greater China



Why Simula

- Design Thinking
- Interface Integrate
- High Frequency, Waterproof and Custom Design
- Superior Technology Solution Partner





Thank You



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