

SIMULA - Consumer Product Solutions

November 2018



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Manufacturing Integration

Tooling Competitiveness

Cable Assembly Competitiveness

Laboratory Equipment

3.0

SIMULA TECHNOLOGY Product Solutions

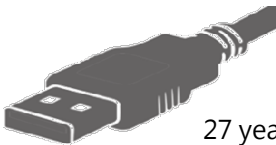
Consumer Solutions

1.0

SIMULA TECHNOLOGY

- 8 Facts About Simula
- Global Support
- Core Competencies
- Solution Overview

8 Facts About Simula



27 years
experience



IPO in Taiwan (2009)



High speed
development



On site sales
and FAE



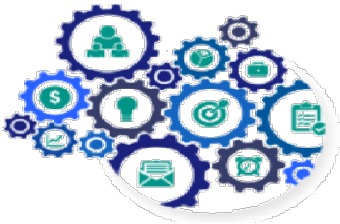
Established 1990



Global logistic



development
team list



Integrated
solution provider

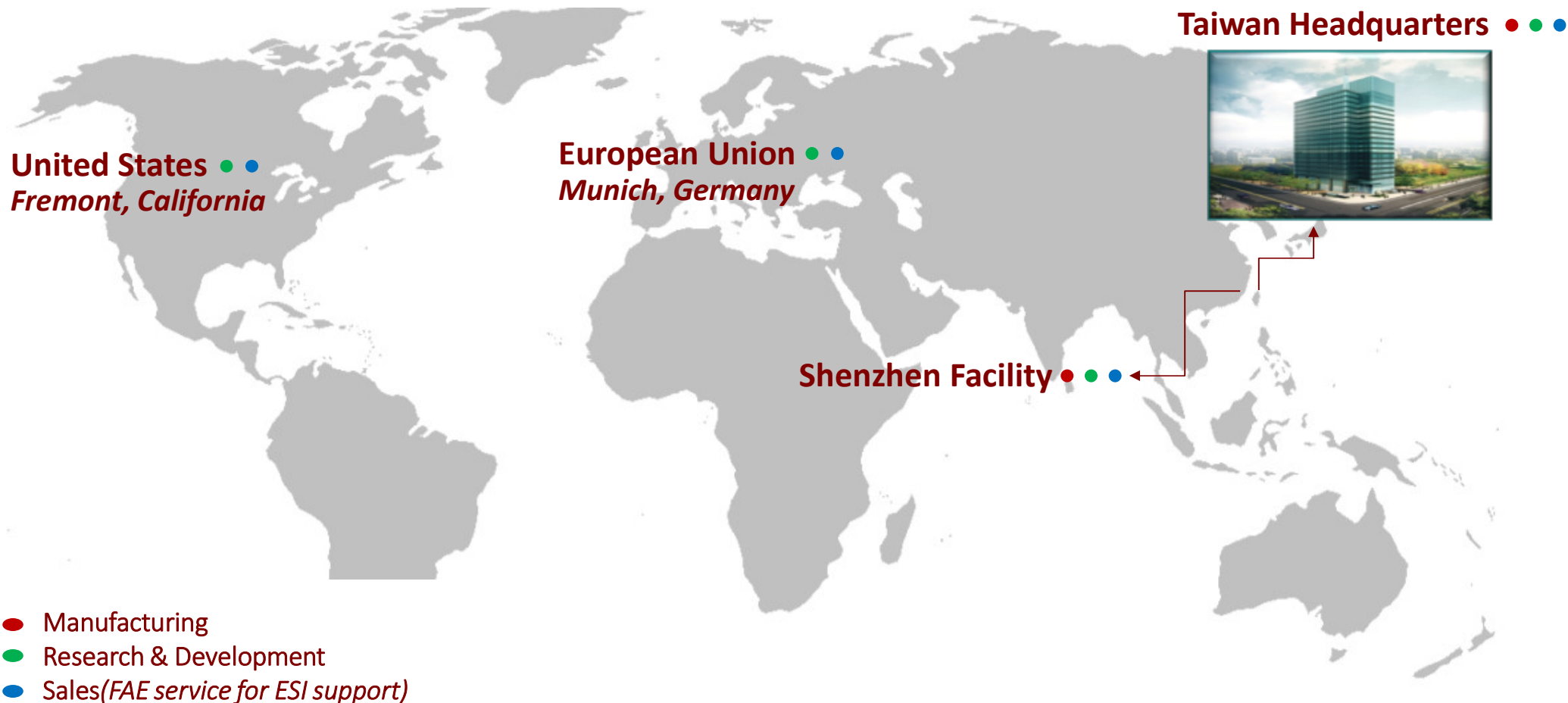


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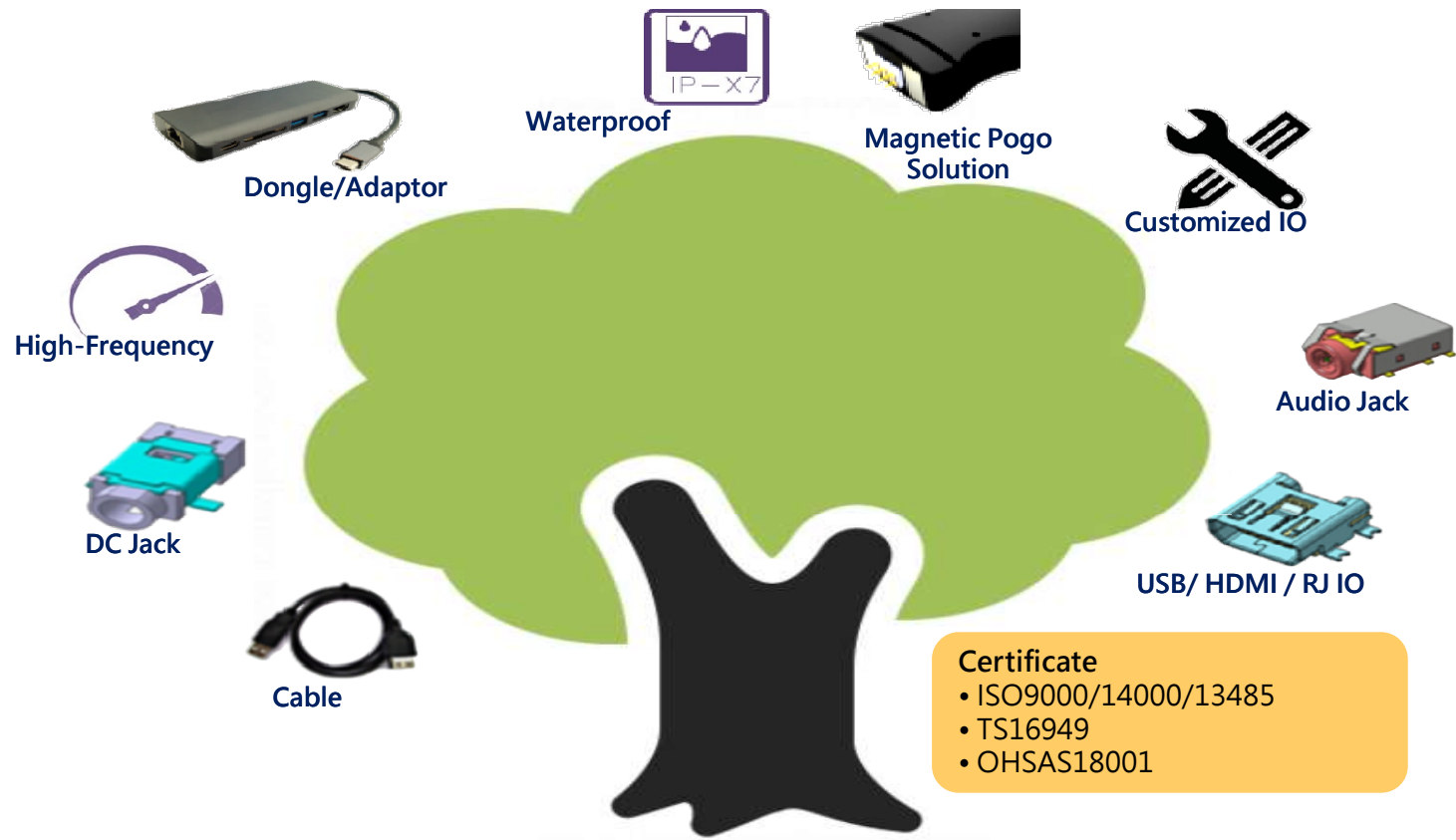


www.simulatechnology.com

Global Support



Solution Overview



Certificate

- ISO9000/14000/13485
- TS16949
- OHSAS18001

Consumer

Industrial

Medical

Automotive

Marine Electronics

Quality Systems

- ISO9001:2005
- IATF 16949:2016
- ISO13485:2003
- ISO14001:2005
- OHSAS18001:2007
- QC080000:2012



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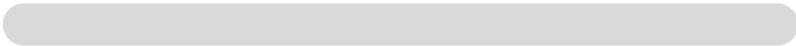
General Overview: Product Solutions



 Simula



Industrial & Outdoor Solutions



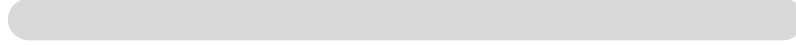
Automotive Solutions



Consumer Product Solutions



Medical & Healthcare Solutions



Others & Turn-Key Solutions



2.0

CORE COMPETENCIES

- Engineering Integration
- Design Integration
- Manufacturing Integration
- Tooling Competitiveness
- Cable Assembly Competitiveness
- Laboratory Equipment

Core Competencies

Engineering Integration

- Mechanical Analysis
- Injection Analysis
- Thermal analysis
- High Frequency analysis

Design Integration

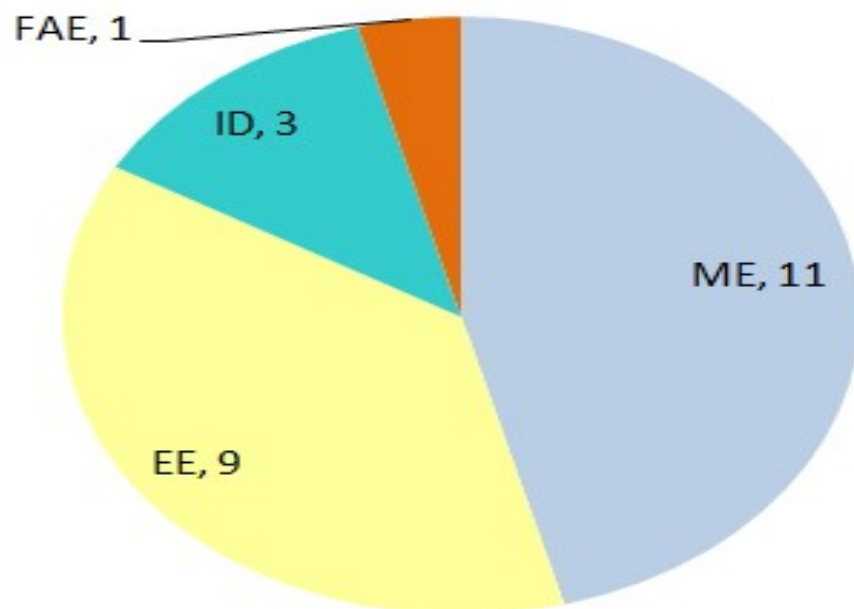
- Receptacle & plug design
- Component verification
- Raw cable design
- Variety ways for cable manufacturing

Manufacturing Integration

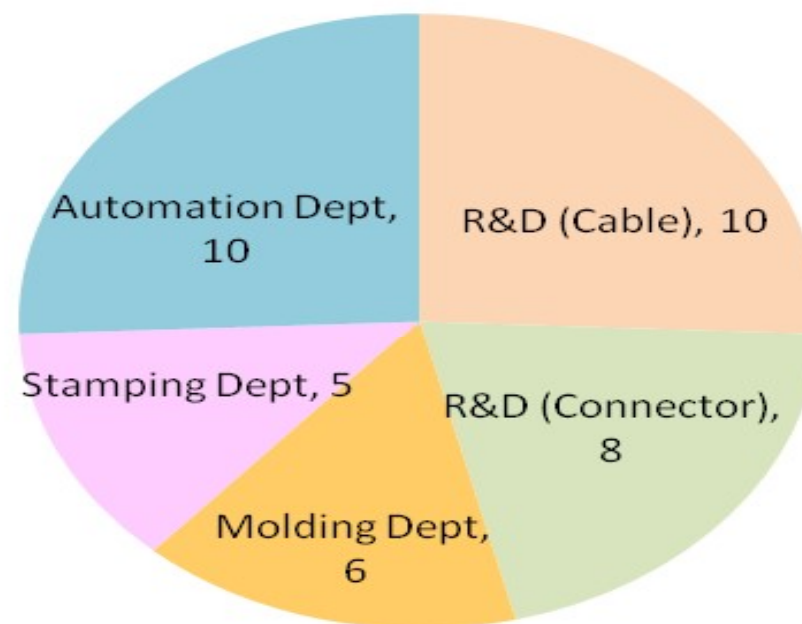
- In-House Tooling
- High precision stamping
- Precision injection
- Different ways for assembly

Core Competencies - Engineering Integration

Taipei R&D team
(Number of people)

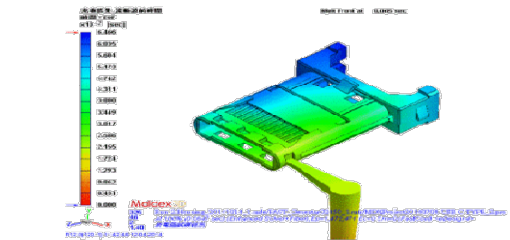


Shenzhen R&D team
(Number of people)

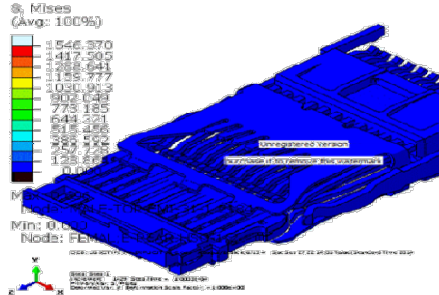
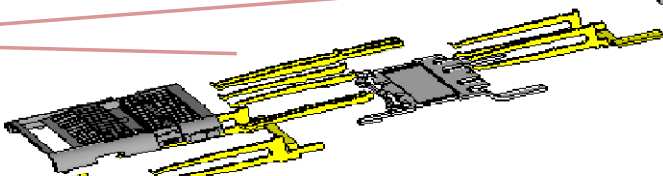
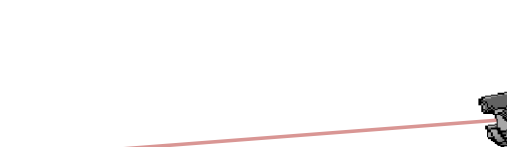
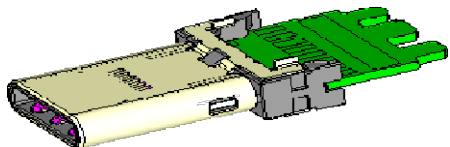


- (1) 63 R&D (24 TPE /39 CN) and 3 FAE for the Worldwide team (1 EE/ 2 ME).
- (2) Over 50% of R&D has more than 10 years of experience.
- (3) Taipei: New project development, Advanced technology;
- (4) Shenzhen: MP, process engineers, cable development.

Core Competencies - Engineering Integration

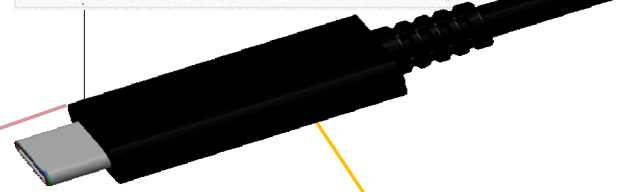
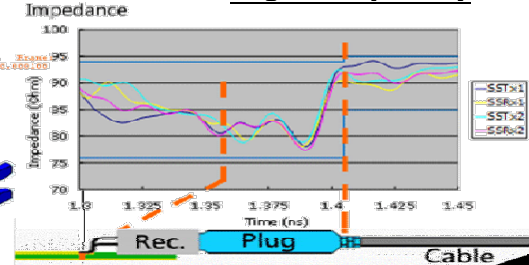


Injection Analysis

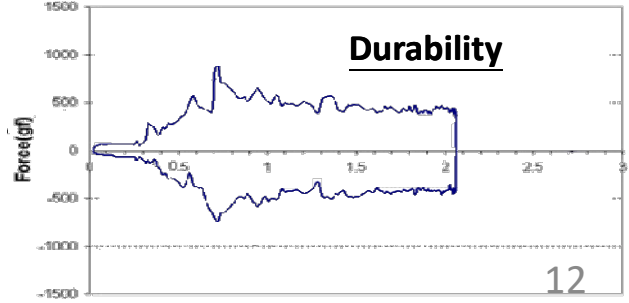


Stress Analysis

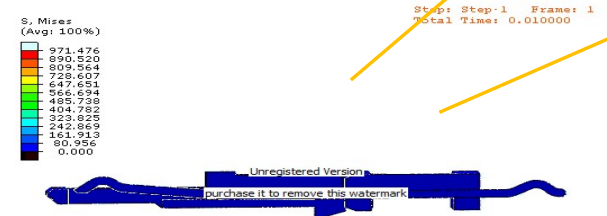
High Frequency



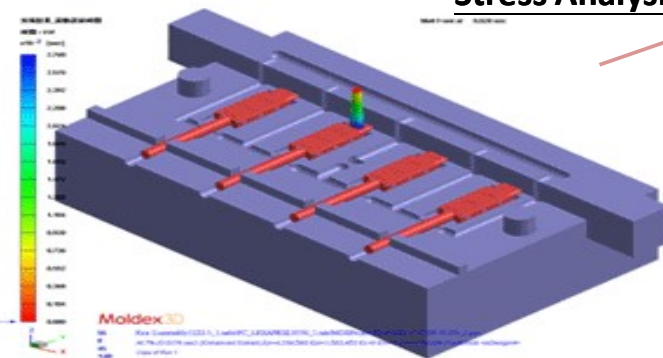
Durability



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Force Analysis



Molding Simulation



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Core Competencies - Design Integration

Sub-System Design

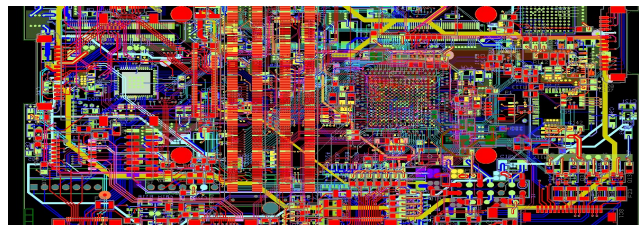
Component
Development



Component
Verification

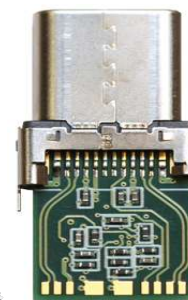


PCB Design



Cable
Process

Passive
Active



Raw Cable
Development

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Core Competencies – Manufacturing Integration



High Precision Stamping

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



Precision Injection

Capable of different ways for assembly.

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



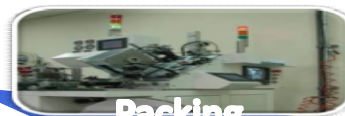
Assembly



CCD Inspection



Function Test



Packing



Tooling Shop

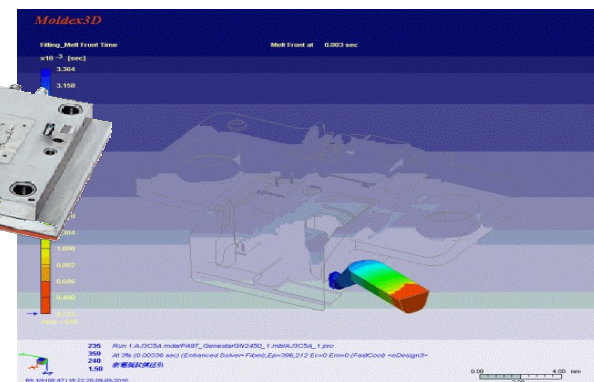
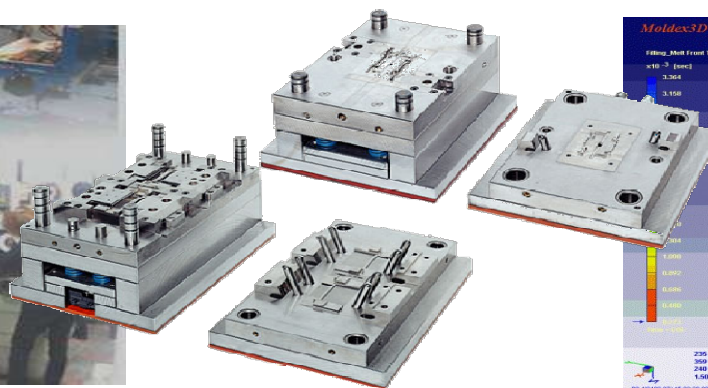


Verification Lab



Tooling Competitiveness

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



Wire Cutting



- Seibu ($\pm 0.002\text{mm}$)
- Sodick ($\pm 0.003\text{mm}$)
- 泰州 ($\pm 0.03\text{mm}$)

EDM



- Sodick ($\pm 0.003\text{mm}$)
- 亞特 ($\pm 0.02\text{mm}$)

Optical Grinding



- Waida ($\pm 0.001\text{mm}$)

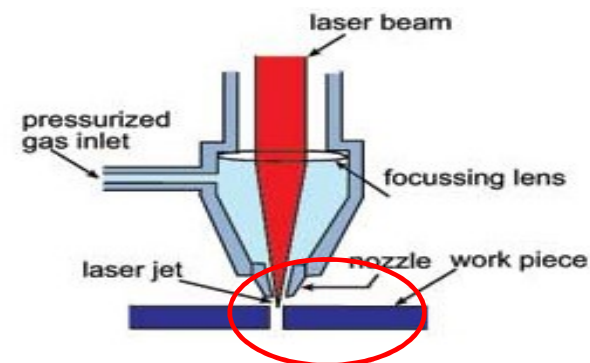
Cable Assembly Competitiveness

Auto - removing the cable jacket

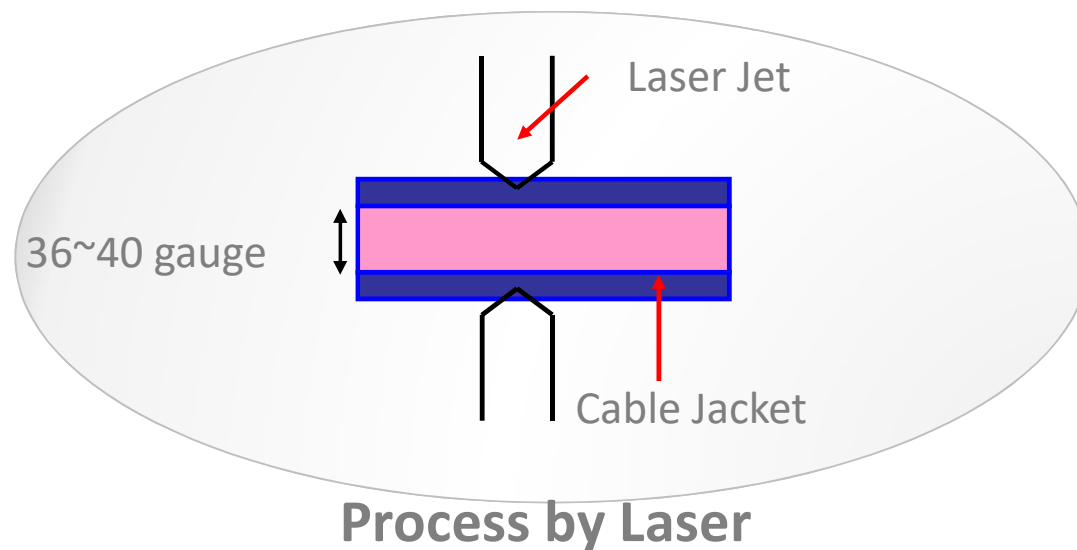
- Laser cutting because of the cable diameter only 36~40 gauge

Auto - soldering process

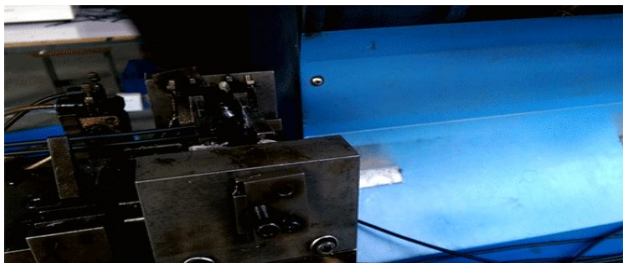
- Hot bar for HDMI D fine pitch 0.80 mm



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



Cable Assembly Competitiveness



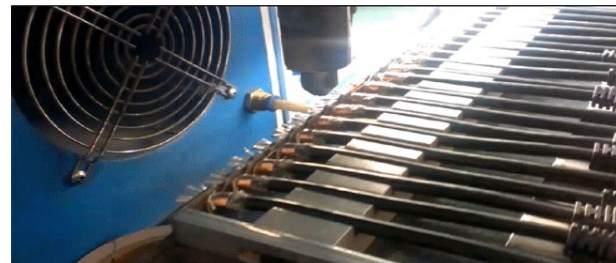
Automatic Wire Cutting,
Stripping Machines



Automatic Welding Machine



Automatic Soldering Machine
(Hot Bar)



Automatic Cutting Laser Machine



Cable Assembly Competitiveness

Soldering Process

Manual Soldering



IR Soldering



Hot Bar Soldering



Cable Assembly Competitiveness

Automation

(wire cutting, pressing and soldering)



Low Pressure Molding



Laser Machine



Waterproof Tester

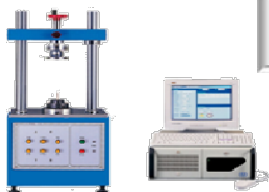


Ultrasonic Drilling Machine



Lab Equipment - Electrical & Environment

Electrical Performance



Spring Force / Contact Resistance Tester 自動抵抗力機

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)



64-Pin Contact Resistance/Lifetime Tester 64-Pin 阻抗/壽命測試機

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

- Function: Life Cycle 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



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.

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Lab Equipment – Mechanical

Mechanical Performance



Profile Projector 立式光學投影機

Measure the length, width, angle of products
• 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)



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 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



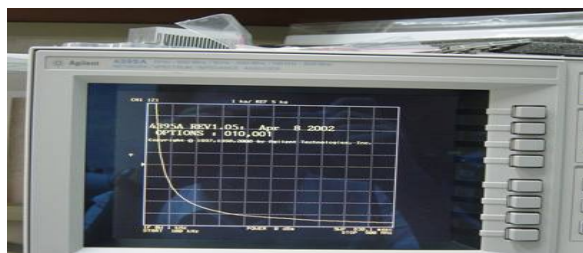
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Lab Equipment – Static/Dynamic

Static/Dynamic Performance



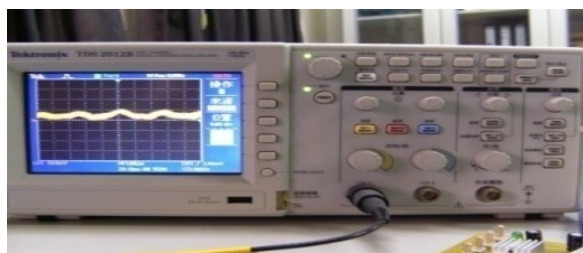
Arbitrary Wave Form Generator



Networking Analyzer



Package Loss Test Machine



Scope Machine



● 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



3.0

SIMULA TECHNOLOGY Product Solutions

CONSUMER SOLUTIONS

- USB, micro USB 2.0/3.1 Connector, Type C Hub: USB-C 3.1 Gen 2 with PD
- Waterproof USB-C/Audio/Micro-B
- Universal Docking Station: USB-C 3.1 Gen 2 with PD 3.0
- Virtual Link 10G | 3 Channels



LCD TV



LCD Monitor



Projector



Notebook



Tablet



Mobile

Consumer Solutions – USB-IF Certified Type-C



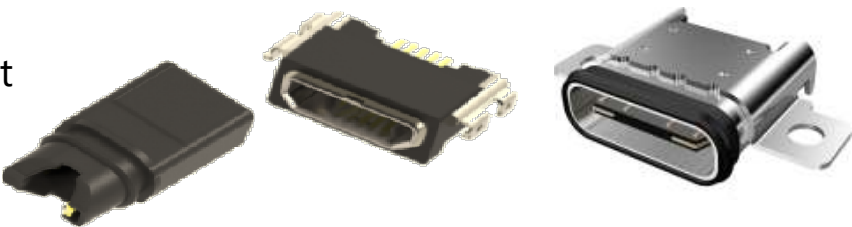
Consumer Solutions - Waterproof USB-C/Audio/Micro-B

Component Level

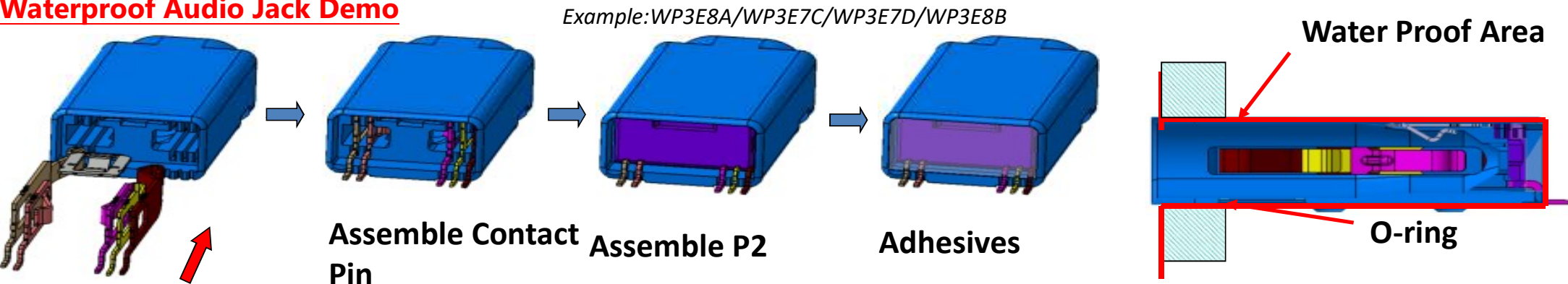
- Insert Molding
- Mylar (Support up to IPX3)
- Adhesive (Required from IPX4)

Device Level

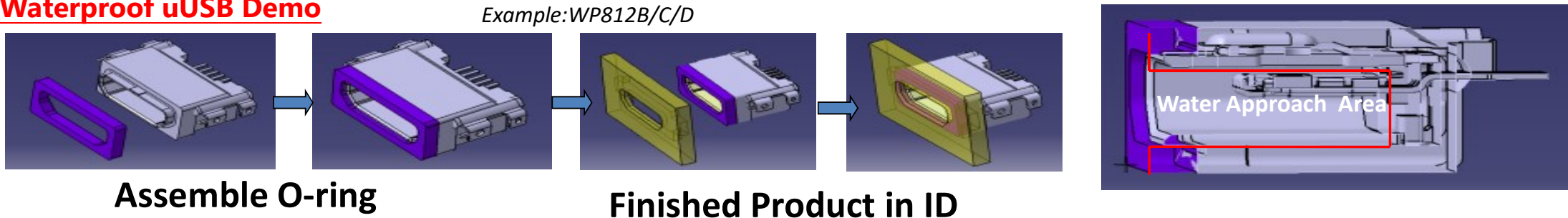
- Device Case Mechanical Support (O-Ring)



Waterproof Audio Jack Demo



Waterproof uUSB Demo



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Consumer Solutions – Lake and Creek Series (Type C Product: Accessories)

Lake Series



Elliott: Type-C to DP



Green: Type-C to HDMI



Moses: Type-C to RJ45



Chelan: Type-C to USB3.0



Ozette: HDMI to VGA



Silver: Type-C to SATA

Creek Series



Rocky: Type-C to DP w/ Charging



Thunder: Type-C to HDMI w/ Charging



Swift: Type-C to VGA w/ Charging

Consumer Solutions – Glacier Series

H USB-C 3.1 Gen2 with PD
u b

Aurora - Three ports USB 3.0 + One Type C Hub

■ Features

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



Consumer Solutions – Glacier Series

H USB-C 3.1 Gen2 with PD
u b

Anderson - Two ports USB 3.0 + Two Type C Hub

■ Features

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



Consumer Solutions – Glacier Series

H USB-C 3.1 Gen2 with PD
u b

Brooks - Two ports USB 3.0 + One RJ45 + One Type C Hub

■ Features

- ✓ 2 x USB-A (5/10 Gbps) output ports (BC1.2/Samsung/Apple charging)
- ✓ 1 x USB-C (5/10 Gbps) output port
- ✓ 1 x 10/100/1000M GbE
- ✓ PD downstream charging up to 5V/3A
- ✓ PD pass through charging up to 20V/3A
- ✓ Cable length 0.15m



Consumer Solutions – Glacier Series

Dock

Universal Docking Station
USB-C 3.1 Gen2 with PD 3.0

**Baker- 1-13 Dock for Display Port/HDMI/VGA Video and
Peripherals Expansion of a Host Device**

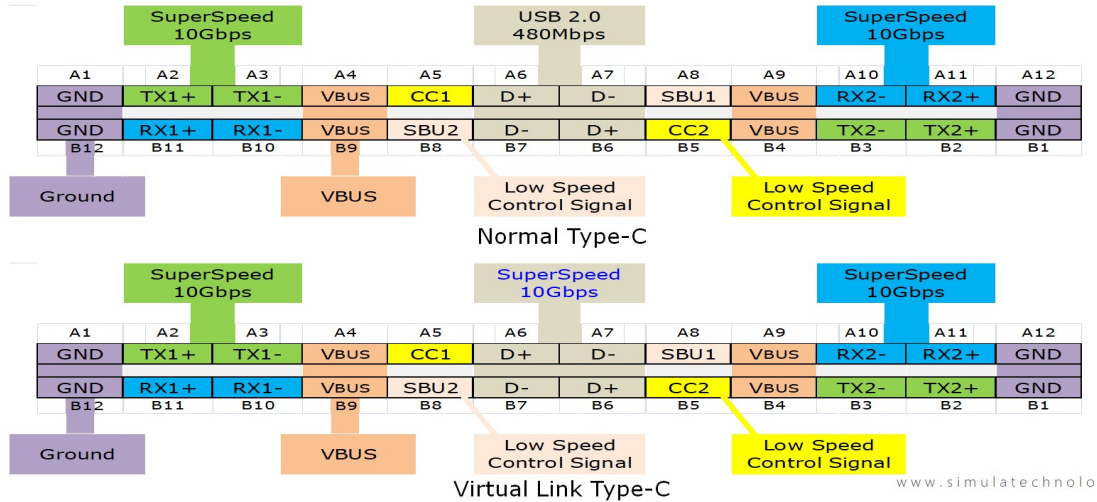
■ Features

- ✓ Up to maximum 5 video outputs simultaneously
 - 2 x DP1.4 output (4k/60Hz)
 - 2 x DP1.2 output
 - 1 x HDMI2.0b output (4K/30Hz)
- ✓ 1 x Type-C 5V/1.5A charging output
- ✓ 4 x USB 3.1 Type A supporting Gen2 Data Rate
- ✓ Audio speaker
- ✓ GbE
- ✓ Maximum 180W Pass Through DC power



Consumer Solutions

USB Type-C Alternate Modes				
	VirtualLink	DisplayPort (4 Lanes)	DisplayPort (2 Lanes)	Base USB-C
Video Bandwidth (Raw)	32.4Gbps	32.4Gbps	16.2Gbps	N/A
USB 3.x Data Bandwidth	10Gbps	N/A	10Gbps	10Gbps + 10Gbps
High Speed Lane Pairs	6	4		
Max Power	Mandatory: 15W Optional: 27W	Optional: Up To 100W		



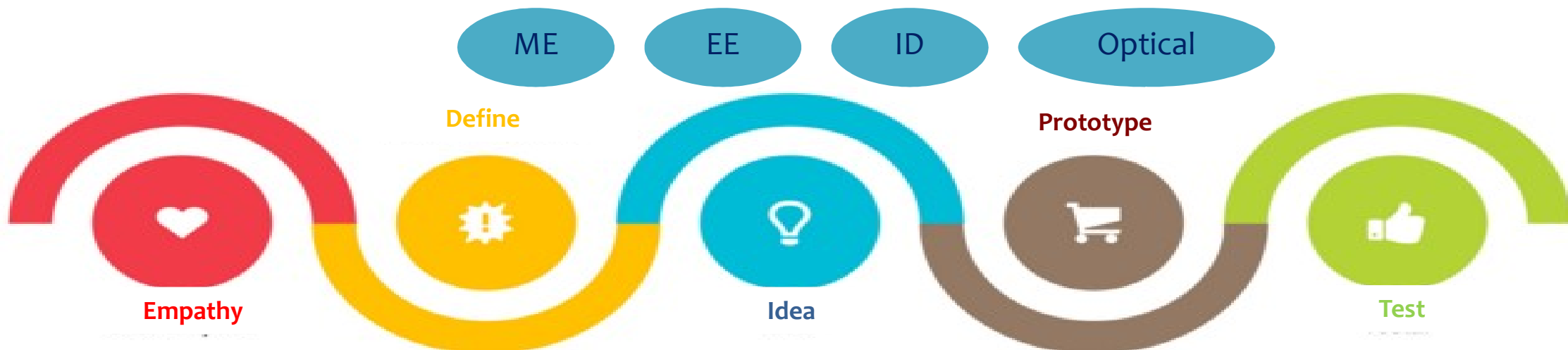
V10G | 3 Channels irtualLink

VirtualLink is an open industry standard developed to meet the connectivity requirements of current and next-generation virtual reality (VR) headsets. VirtualLink is a consortium defined Alternate Mode of USB Type-C™ designed to deliver the power, display, and data required to power VR headsets through a single USB Type-connector



Why Simula?

- Design Capability
- Design Process
- Simulation Analysis
- Manufacturing Competitiveness
- Comprehensive & Advance Tester
- Superior Technology Solution Partner





Thank you



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