Ironwood
ELECTRONICS

Products, Services & Capabilities

B.C.E. ELECTRONICS
Importation & Distribution Electronic Components

B.C.E. s.r.l.
Via Regina Pacis, 54/c - 41049 SASSUOLO (MO) Italy
Tel. +39 0536 811.616 r.a. - Fax +39 0536 811.500
www.bce.it - E-mail: bce@bce.it

SYSTEM CERTIFICATION ISO 9001 SGS

Overview

Ironwood ELECTRONICS
www.ironwoodelectronics.com

- Company Overview
  - Founded 1986
  - Over 10,000 catalog products
  - High Performance Adapters and Sockets
  - Many Custom Designs & Turn-Key Solutions
  - Engineering – Electrical and Mechanical
  - ISO9001:2015 Registration
  - World wide distribution
  - Customers – Engineering and OEM
  - 57 Employees
- Capabilities Overview
  - Simulation
    - QFIN for heat sink design
    - Microwave Studio for electrical
  - 3D Solid Modeling CAD & CAM
    - ProEngineer, Solid Works
    - Gibbs cam
  - PCB Technology
    - PADS Layout, PADS Router
    - Controlled Impedance, Embedded Resistors, Laser Micro Vias, Filled Via in Pad, 3/3 traces, Rigid-flex PCBs
  - State of the art CNC machines - Tight Tolerance 3D Machining (e.g. ±0.0127mm), Swiss screw machine, Print, Pick, Place & Reflow assembly line, High speed PCB drilling, Laser cutting/drilling, Automated Optical Inspection, Impedance test, FDR test.

Product Overview

- Elastomer Sockets
- Spring Pin Sockets
- Manual Socket Lids
- Clamshell/Lever Actuation
- Zero footprint Sockets
- Near Zero footprint Sockets
- SMT Adapter Sockets
- SMT Package Emulation
- Package Convertors
- Prototype, Probing & Analysis Adapters
- Electronic Modules

B.C.E. S.r.l. Via Regina Pacis, 54/c - I 41049 Sassuolo (MO)
Tel.: (+39) 0536 811616 - Fax.: (+39) 0536 811500 e-mail: bce@bce.it - Website: www.bce.it

Engineering Sockets

Ironwood ELECTRONICS
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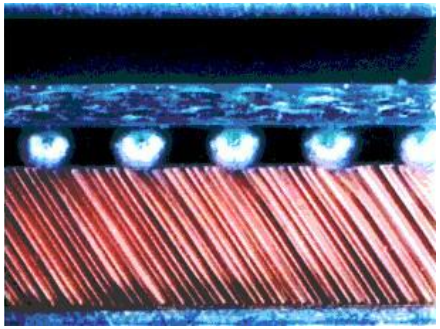
Continuous improvement

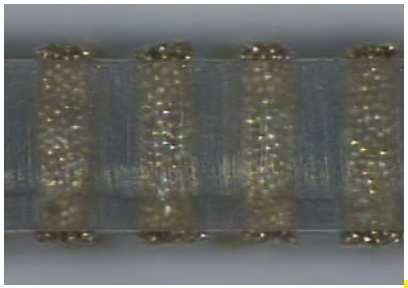
20 Years

Proven Capability

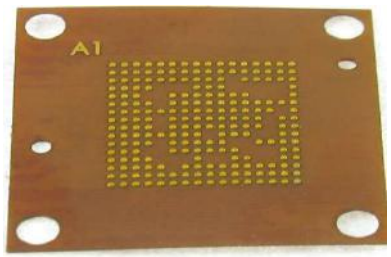
Development

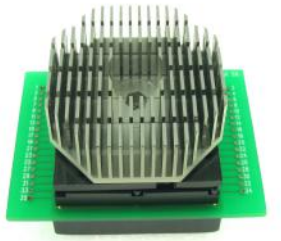


BGA compressed on Elastomer

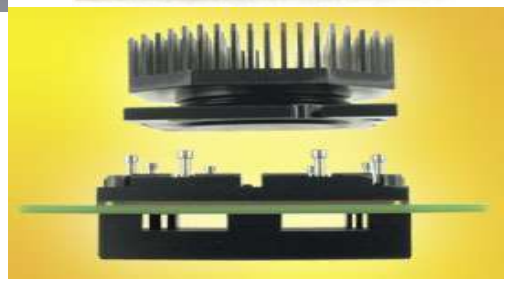


Silver particle Elastomer



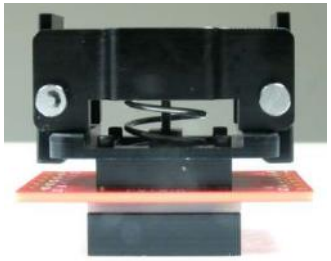


Heat sink lid



Swivel lid socket with decaps accommodated back plate

Torque indicator



Double latch lid

Capabilities
- 0.3mm to 1.27mm pitch
- 1x1mm to 60x60mm device
- BGA, LGA, QFN, QFP, SOIC, WLP
- 4000 pin count
- 75GHz
- Heat sink options
- Easy chip replacement
- Custom support plate options
- Custom mounting options
- Industry's smallest footprint

Surface mount adapter

PoP socket with two elastomers

Back-to-back socket

Clamshell lid

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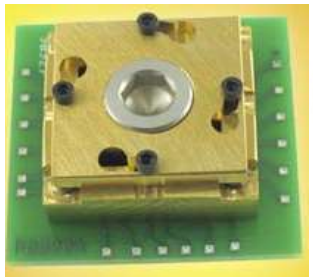
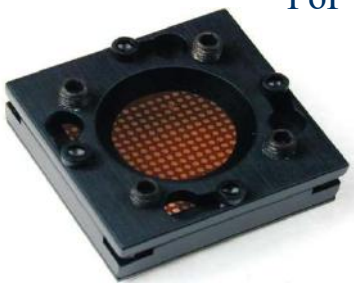
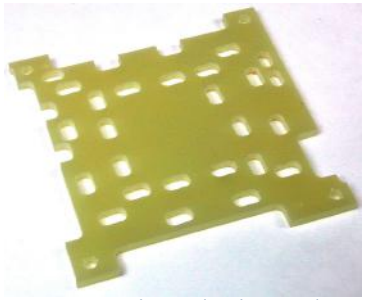


Gold RF socket



Open top lid

No mounting hole socket



Custom insulation plate

Production & Burn-in Sockets

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Continuous improvement

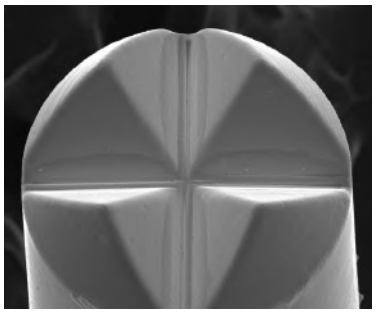
Proven Capability

Development

13 Years

Stamped LGA pogo pin

Stamped BGA pogo pin

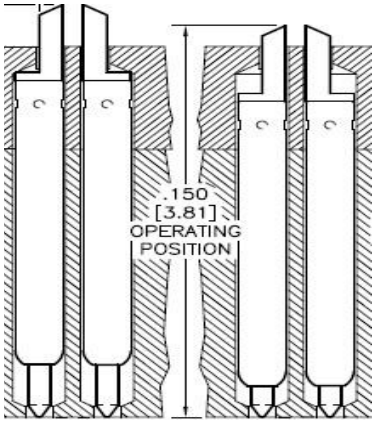


Self cleaning Pogo pin crown

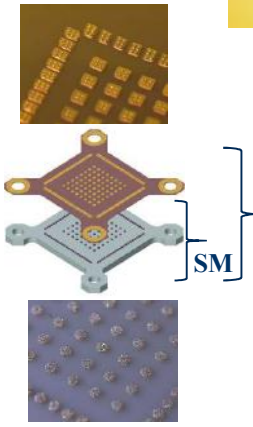
Ceramic QFP socket with center E-pad

Short 3piece Pogo pin

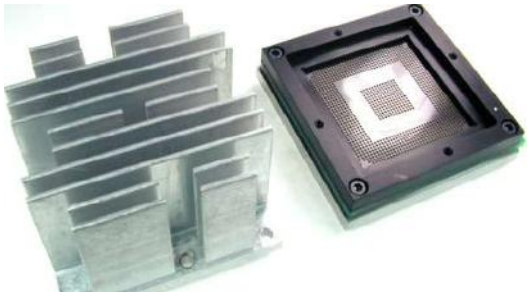
Capabilities
- 0.2mm to 1.27mm pitch
- 1x1mm to 60x60mm device
- BGA, LGA, QFN, QFP, SOIC, WLP
- 4000 pin count
- 45 GHz, 500K cycles
- Consistent contact resistance throughout life
- Low cleaning frequency
- High current & extreme temperature



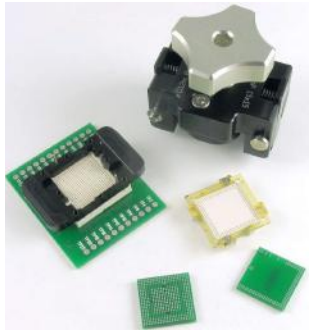
Offset plunger Kelvin pogo pin



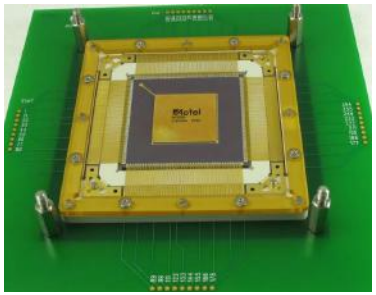
SOIC production socket



BGA production socket with heat sink lid



Multi Level SBT socket



Flat lead Ceramic QFP production socket

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Socket Lid Options

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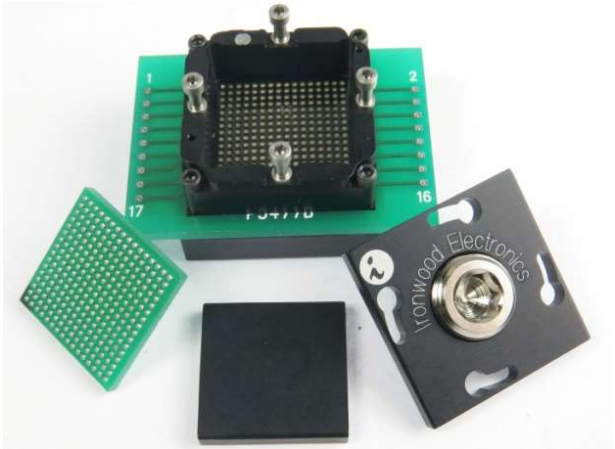
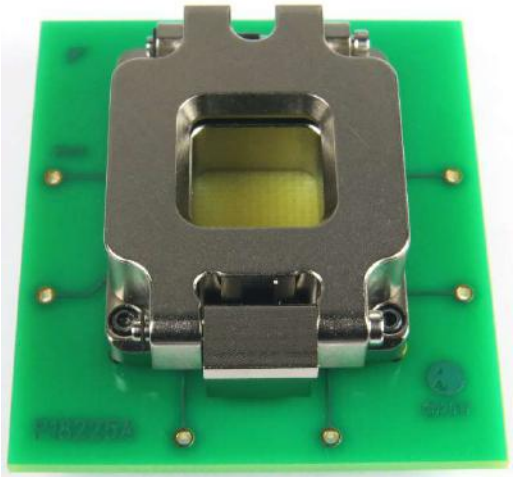
Swivel Lid Socket



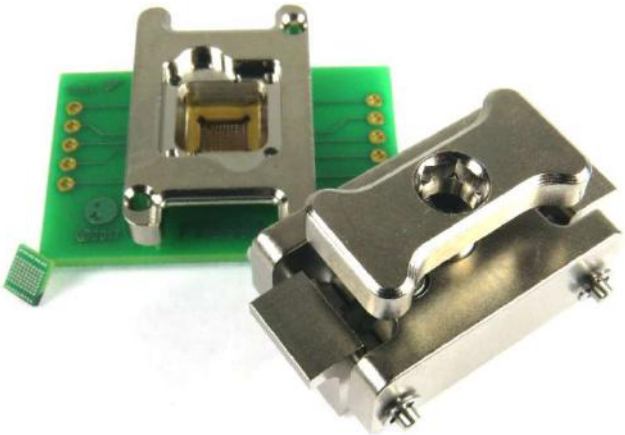
Screw Top Socket w/Center Open

Snap Lid Socket w/Center Open

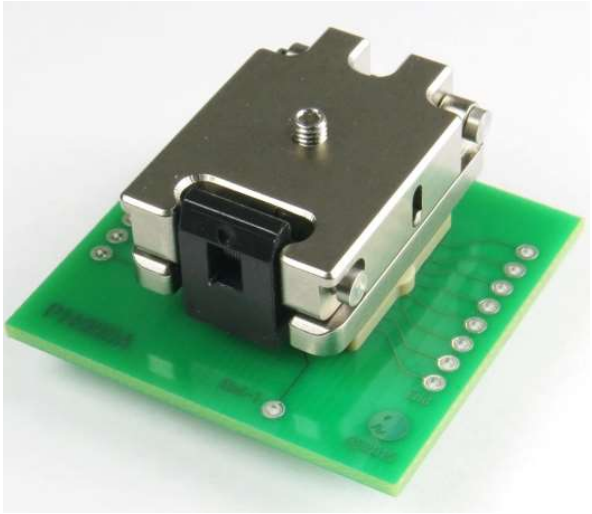


Double Latch Socket w/Center Open

Double Latch Socket w/Handle



Snap Lid with adjustable pressure screw Socket



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Socket Lid Options

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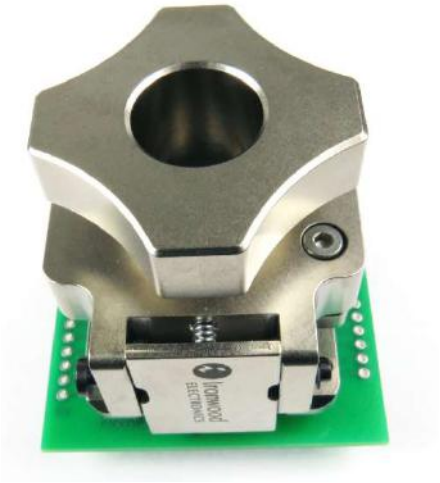
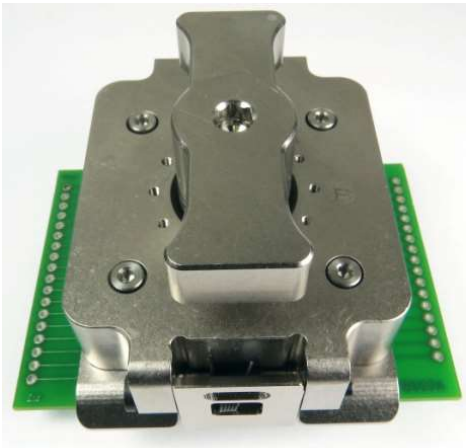
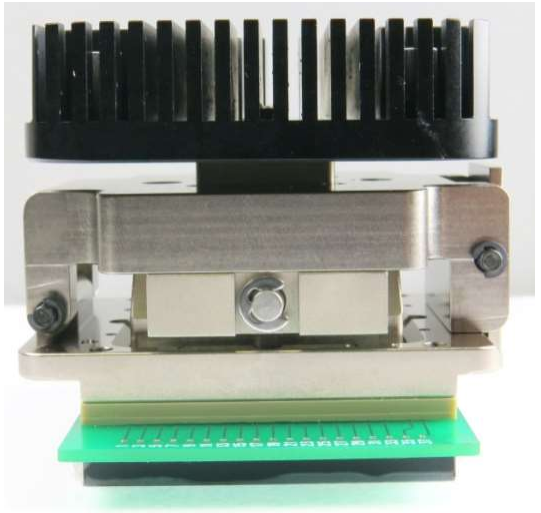
Clamshell Socket w/Center Open



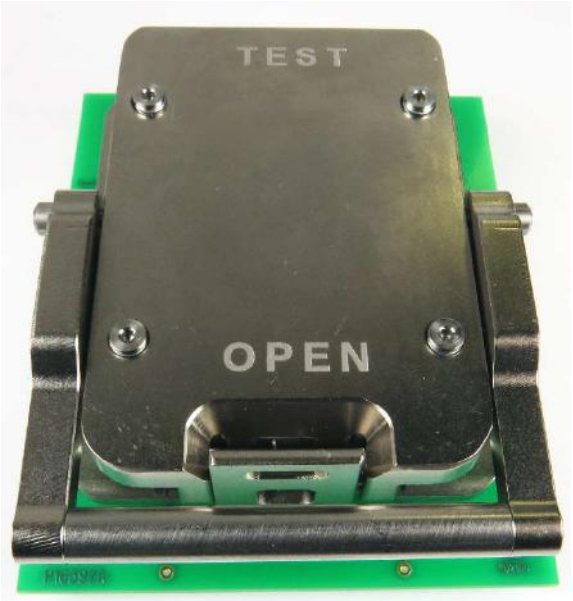
Clamshell Adjustable Hard Stop Socket



Clamshell Socket w/Heat Sink

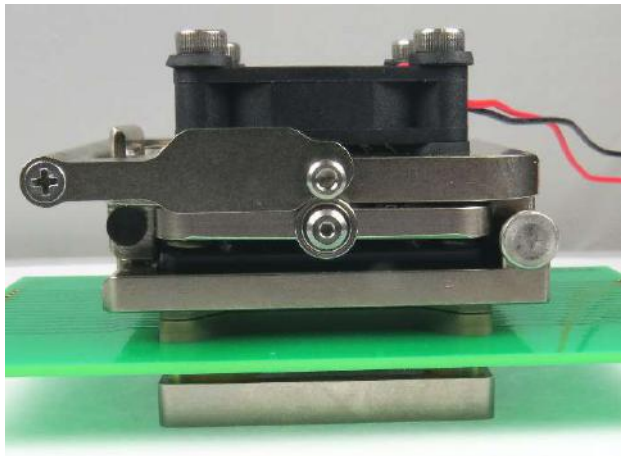


Lever Lid Socket



Lever Lid Socket w/Center Open

Lever Lid Socket
w/Fan and Heat Sink



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Contact Technology Summary

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Characteristics	Embedded Wire Elastomer (SG)	Stamped spring pins (SBT)	Embedded Silver Ball Elastomer Matrix (SM/SMP)	Silver Button Elastomer (GT/GTP)
Bandwidth, GHz	27 to 56.8	4.15 to 31.7	44.8	94
Endurance, Cycles*	2K	500K	5K/500K	1K/200K
Resistance, mΩ	20	15	15	20
Self Inductance, nH	0.11 to 0.28	0.88 to 0.98	0.1	0.04
Max Current, Amp	2	8	7.8	7.8
Temp Range, ºC	-35 to +125	-55 to +180	-55 to +155	-55 to +160
Pitch, mm	0.3 to 1.27	0.3 to 1.27	0.25 to 1.27	0.2 to 1.27
Package Types	BGA, QFN, QFP, SOIC	BGA, LGA, QFN, QFP, SOIC	BGA, LGA, QFN	BGA, LGA, QFN
Lab test	√	√	√	√
Production test		√	√	√
Field upgrade	√	√	√	√
Temperature test	√	√	√	√
Kelvin test	√	√	√	√
Burn-in test		√		

*Cycle life shown at room temperature. Reduced cycle life is expected when used at extreme temperatures, thermal cycling, improper force, cleaning and handling.

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Pin Datasheet

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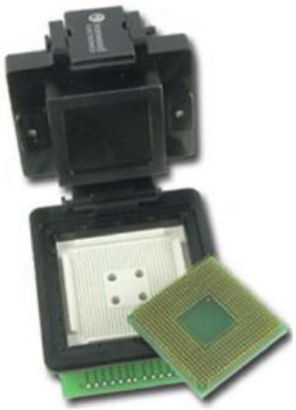

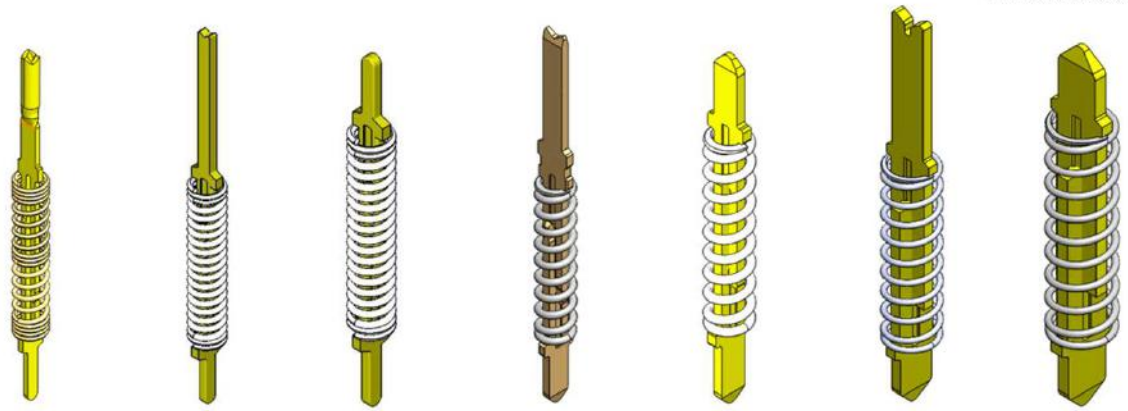

Pin Family	SBT	SBT	SBT	SBT	SBT	SBT	SBT
Part Number	P-P204A	P-P185A	P-P184A	P-P196A	P-P150A	P-P151A	P-P152A
Minimum Pitch (mm)	0.35	0.4	0.4	0.5	0.5	1.0	1.0
Pin Type	BGA	BGA	LGA	BGA	LGA	BGA	LGA
Length (mm)	3.46	3.81	2.9	3.86	2.95	5.69	4.45
DUT Side Tip Shape	Crown	V Shape	Radius Cone	V Shape	Radius Cone	Notched V	Radius Cone
DUT Side Tip Dimension (mm)	0.17	0.14	0.12	0.2	0.06	0.54	0.1
PCB Side Tip Shape	Radius Cone	Radius Cone	Radius Cone	Radius Cone	Radius Cone	Radius Cone	Radius Cone
PCB Side Tip Dimension (mm)	0.12	0.12	0.12	0.04	0.06	0.1	0.1
DUT Side Travel (mm)	0.3	0.5	0.3	0.33	0.33	0.6	0.6
PCB Side Travel (mm)	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Force (g)	8.7	17	14.5	30	30	19	19
Cres (mOhms)	< 70	< 50	< 50	< 30	< 30	< 15	< 15
CCC @ ambient (Amps)	1	1.8	1.8	4.0	6.0	8.0	8.0
Bandwidth (GHz @ -1dB)**	23.5 - 26.1	20.5 - 31.7	20.5 - 31.7	5.2 - 15.7	5.2 - 15.7	14.1 - 21.9	14.1 - 21.9
Self inductance (nH)	0.92	0.98	0.98	0.88	0.88	0.93	0.93
Temperature (deg C)	-55 to +180C	-55 to +180C	-55 to +180C	-55 to +180C	-55 to +180C	-55 to +180C	-55 to +180C
Insertion Cycles	50K	50K	50K	500K	500K	500K	500K

* 0.4mm/0.5mm pitch SBT pins are used in 0.65mm and 0.8mm pitch applications

** Bandwidth range is based on pin location (corner, edge, field). See report for test conditions and setup.

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Zero Footprint Sockets

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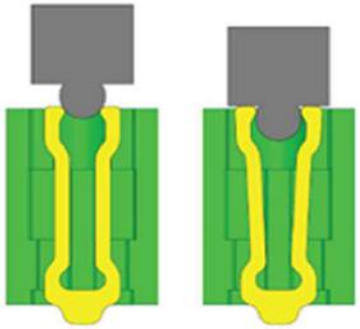
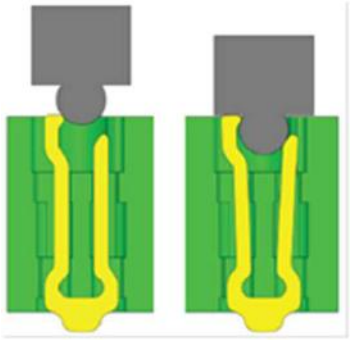
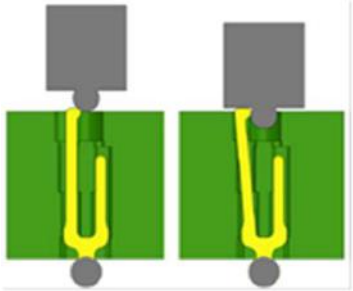
- No lid required
- Socket same size as device
- device simply snaps in for test
- Allows test on platform boards



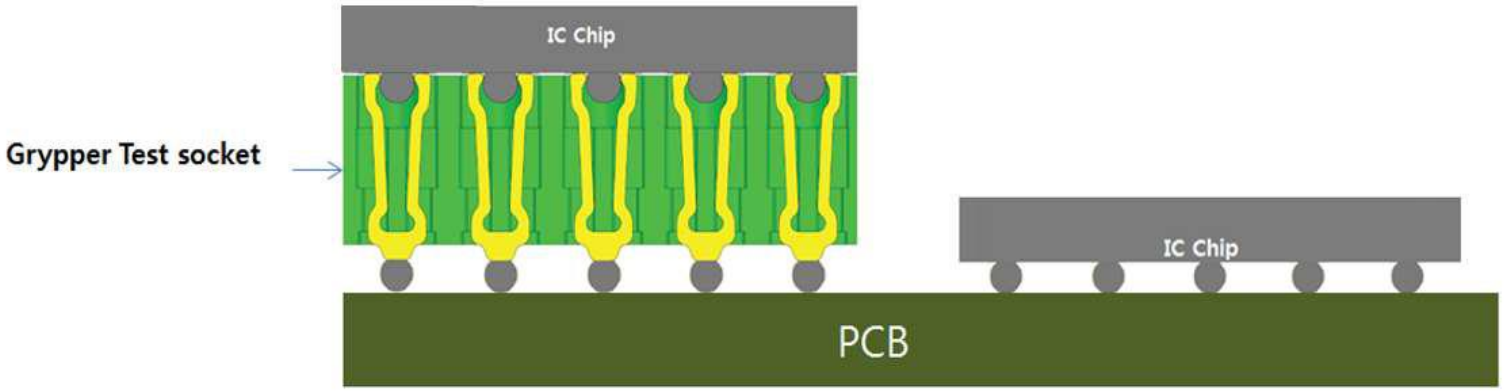
Grypper



G80



G35/40



Near Zero Footprint Sockets

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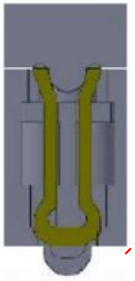
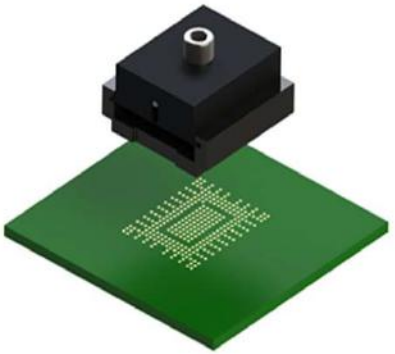
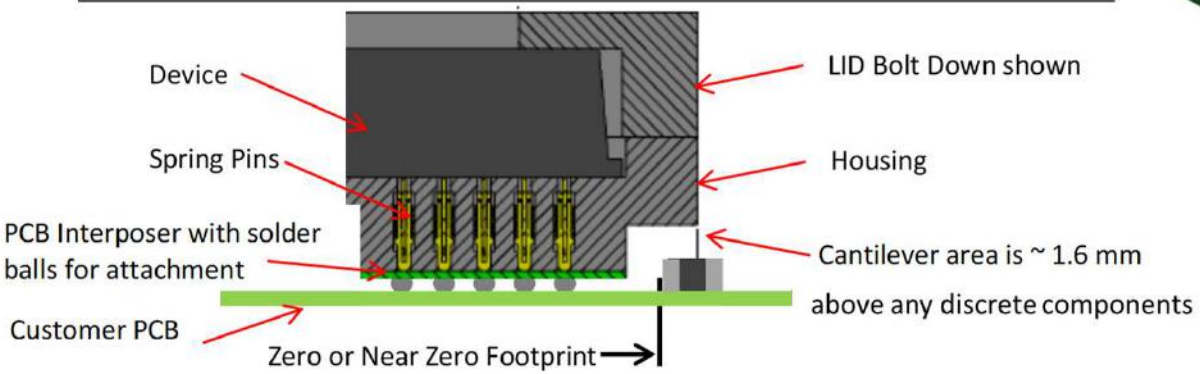
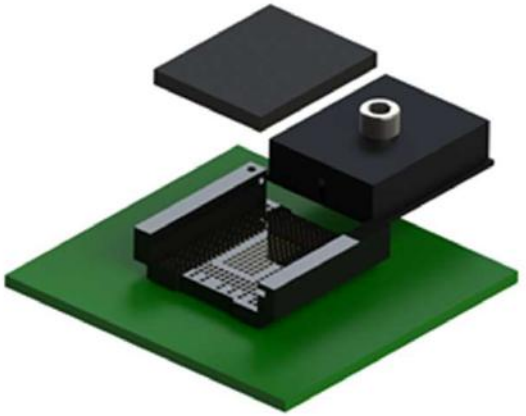
- "Y" contact technology:
  - Does have a cover
  - Great for vibration testing
  - Still near zero footprint
  - Test same device up to 200+ times with little mark on the ball
- "Spring Pin" contact technology:
  - Same attributes of "Y" solution.
  - Longer life out of the socket
  - Low volume ATE applications
  - LGA,BGA, small ball.





METHODOLOGY





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Engineering Adapters

Ironwood ELECTRONICS
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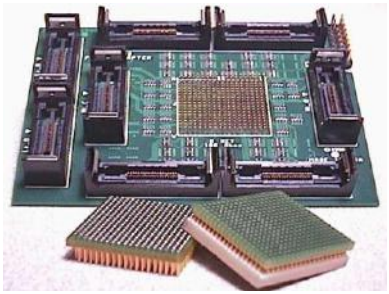
Continuous improvement
27 Years
Proven Capability
Development

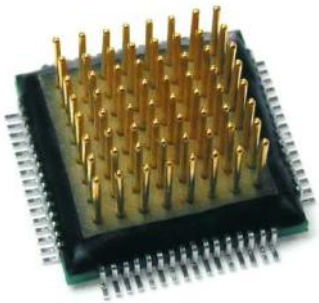


Power PC BGA device interfaced to Logic analyzer and mother board for functional analysis

SOIC, PLCC adapter

0.5mm pitch 21x21 array 289 position BGA solder balls to AMP 104068 connectors using rigid flex PCB with socket fixture

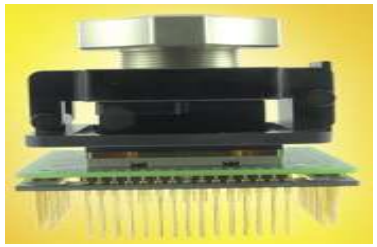
60 pin, 0.8mm pitch BGA rigid-flex probing adapter with AMP mictor and BGA surface mount foot



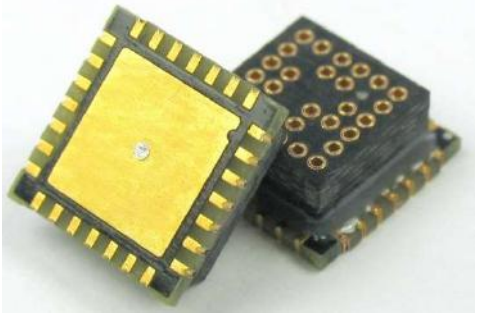
Gull-wing QFP Emulator foot

J-leaded PLCC Emulator foot

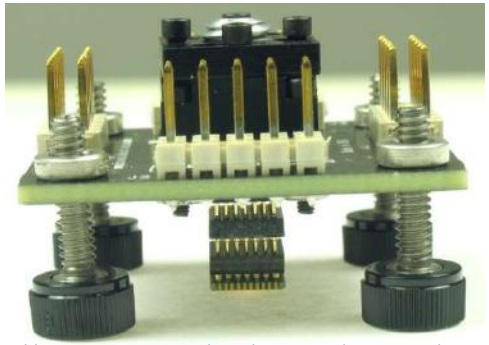
Capabilities
- 0.4mm to 1.27mm pitch
- 2x2mm to 50x50mm device
- BGA, LGA, QFN, SOIC, PLCC, QFP, DIP, PGA, etc
- 2000 pin count
- RoHS compatible
- Agilent, Tektronix compatible
- Rigid & flex options



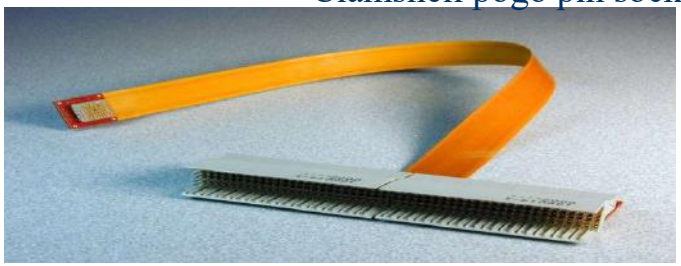
BGA proto adapter with Clamshell pogo pin socket



Leadless QFN emulator



Allows QFN device to be socketed to mother board with signals brought out to test pins



Flex emulator – 125 position AMP Z pack connector to 80 position female interface

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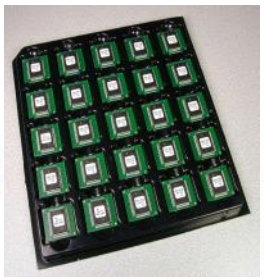
Production Adapters

Ironwood ELECTRONICS
www.ironwoodelectronics.com

Continuous improvement
27 Years
Proven Capability
Development

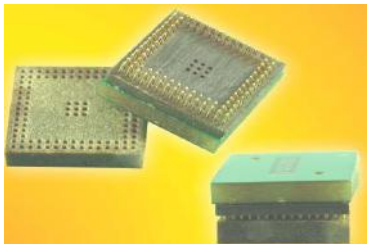
Daughter card module
Interfaced to QFP footprint



QFP device mounted to PLCC Footprint
on target board with shortest trace length

BGA to BGA conversion with
complex signal swap due to
device enhancement without
additional real estate

SoC module with high
density connector

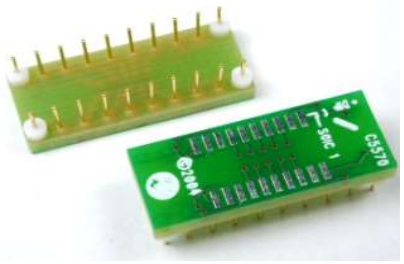


0.5mm pitch BGA
Pluggable adapter system

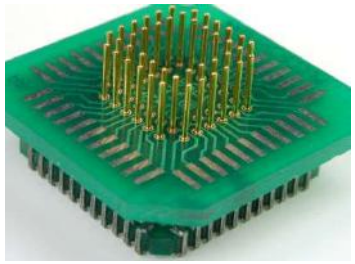
Capabilities
- 0.4mm to 2.54mm pitch
- 2x2mm to 50x50mm device
- BGA, LGA, QFN, SOIC, PLCC, QFP, DIP, PGA, etc
- 3 mil trace/space
- Laser micro vias
- Embedded caps & resistors
- Lead free options
- Tray, Tape & Reel options
- Turnkey solutions

SOIC device mounted
to PLCC footprint
using solder column
technology for high
volume production

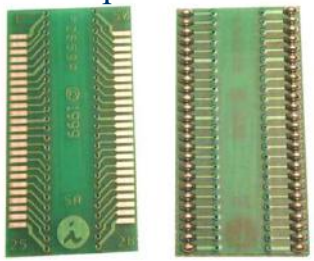
2000 pin count BGA adapter
system plugged together



SOIC to DIP convertor
using blind hole technology



PLCC plug connects
Daughter card to socket



SOIC pitch convertor

IP, 1/23/2020

Facility Overview

Ironwood ELECTRONICS
www.ironwoodelectronics.com

24000 Sq. Ft Building

Production area

Machining area

ESD Automated Assembly area

B.C.E. S.r.l. Via Regina Pacis, 54/c - I 41049 Sassuolo (MO)
Tel.: (+39) 0536 811616 - Fax.: (+39) 0536 811500 e-mail: bce@bce.it - Website: www.bce.it

Custom Capabilities

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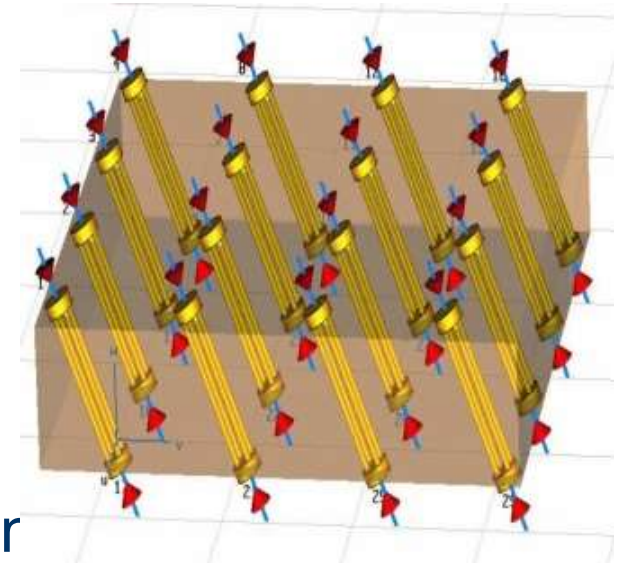
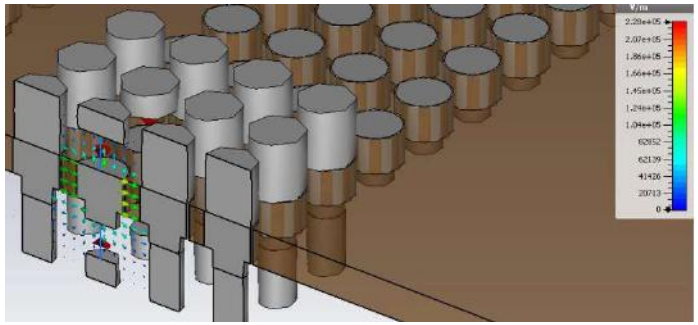
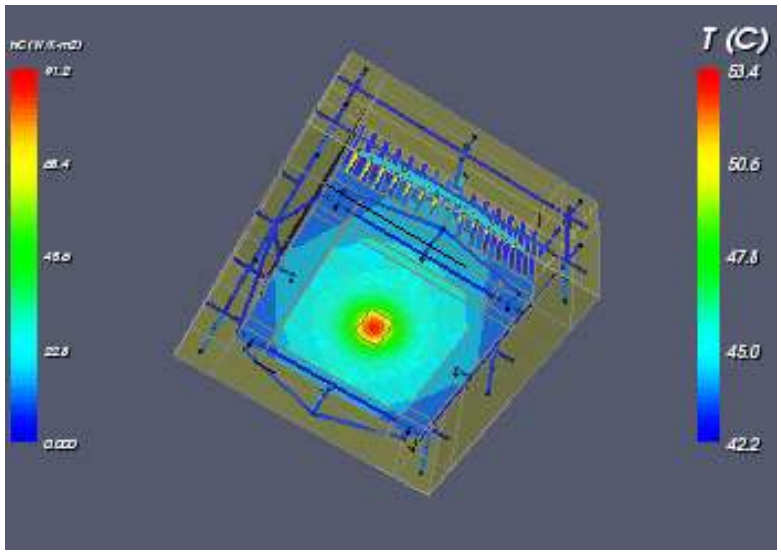


- Custom designs in 2 days
- Match customer's PCB footprint
- Custom manufacturing in 10 days
- Multiple contactor technologies
- Heat sink simulation and design
- Contactor signal integrity simulatior
- In-house automated optical inspection
- In-house machining
- Quick turn production





B.C.E. S.r.l. Via Regina Pacis, 54/c - I 41049 Sassuolo (MO)
Tel.: (+39) 0536 811616 - Fax.: (+39) 0536 811500 e-mail: bce@bce.it - Website: www.bce.it

Note

B.C.E. ELECTRONICS
Importation & Distribution Electronic Components

B.C.E. s.r.l.
Via Regina Pacis, 54/c - 41049 SASSUOLO (MO) Italy
Tel. +39 0536 811.616 r.a. - Fax +39 0536 811.500
www.bce.it - E-mail: bce@bce.it

SYSTEM CERTIFICATION ISO 9001 SGS

Thank you