

Reltech 9000

Ultra High Power HTOL Systems

As the world becomes further connected, the infrastructure that supports this world is becoming increasingly complex and demands semiconductor devices with very powerful processing capability.

Artificial Intelligence (AI) is at the forefront of many organizations' development and the success of AI depends heavily on storage, communication speed, networking, and ultimately very powerful processing capabilities. The critical nature of these data crunching, power hungry processors relies that not a single error or misstep occurs, which is driving equipment that handle the devices as if they are in the final application.

The accelerated life testing of these devices is driving the need for more advanced test systems and equipment capable of handling very high power operation surpassing the capabilities of conventional High Temperature Operating Life (HTOL) or Burn-in systems using traditional air convection methods for temperature control.

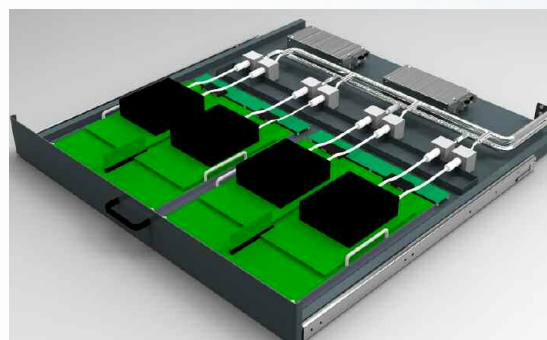
Reltech Limited is pleased to announce the latest addition to its portfolio of semiconductor qualification test systems. The Reltech 9000 series HTOL system, developed in conjunction with Sensata Technologies and incorporates the very latest in Sensata's Qinx iSocket™ technology with liquid thermal control, controlling devices with up to 800W dissipation.

Reltech 9000 HTOL System Features

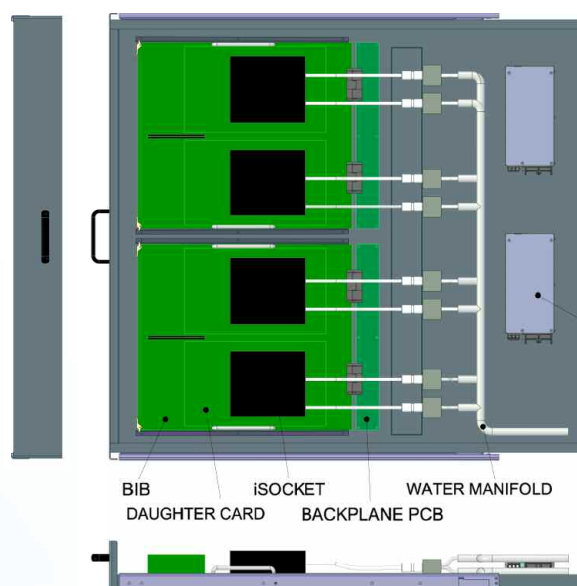
- ◆ Liquid cooled iSocket™ Technology
- ◆ 800W per DUT HTOL capability
- ◆ Individual DUT Temperature Measurement & Control
- ◆ Open Rack - Room Temperature (RTBI) non chamber design
- ◆ Easy to load trays on telescopic slides
- ◆ System PC - iHost™ Software – DUT level thermal control
 - RELMON Software – HTOL project programming and DUT monitoring
 - Over temperature/voltage/current DUT auto shut down
- ◆ 1 x 6kW 16 channel OUM type EM2011 (per 10 Tray Rack) for DUT heater power and iSocket™ control and communications
- ◆ Each OUM channel can drive up to 16 iSocket™ Controllers and up to 4 DUT's per Controller
- ◆ Real Time monitoring functions
- ◆ Voltage, Current per DUT
- ◆ DUT Status
- ◆ Multi DUT type HTOL testing
- ◆ Remote System & HTOL monitoring
- ◆ Modular Rack Design



Reltech 9020 Ultra High Power HTOL System



9000 series HTOL Tray



REL9000 HIGH POWER TRAY LAYOUT - PRELIMINARY



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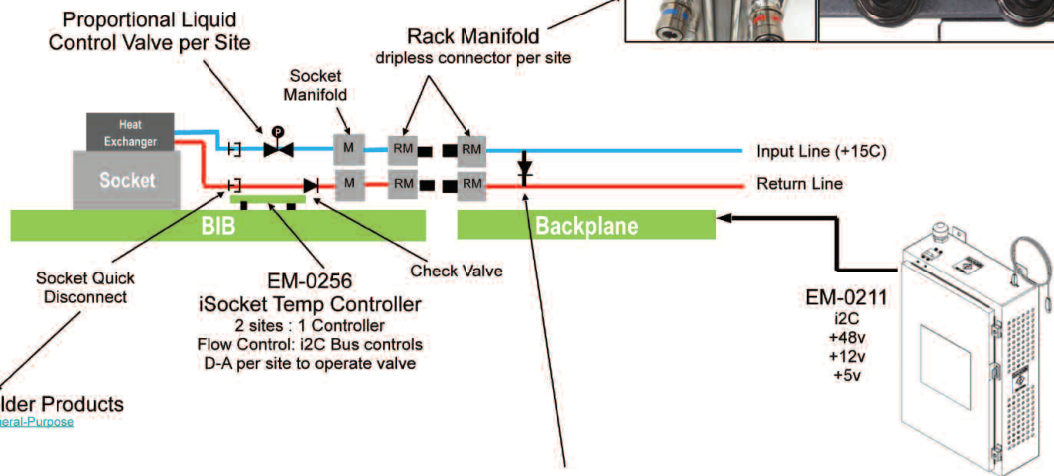
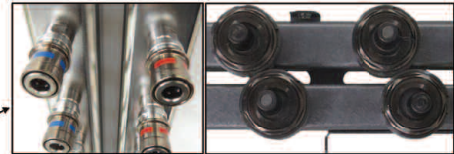
System Overview

Side View of Drawer



Manifold Option **: Cool It Systems

~\$26 per input/output - <https://www.coolitsystems.com/rack-manifold/>



Socket Disconnect **: Colder Products

<https://www.cpcworldwide.com/Products/General-Purpose>



Flow Control Valve **: TBD

Proportional Control Valve, 0-5V



Bypass Valve **: Differential Bypass Valve

Example available [Here](#)



** Noted component references and suppliers are provided by Sensata only as an example, final selection to be determined by Reltech for system components supplied by Reltech

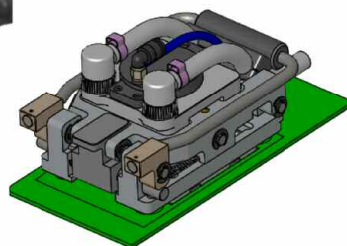
Socket Overview

• Socket includes:

1. **Socket Actuator with Thermal Solution** - up to 80mm DUT sizes, re-usable on other programs
 - Estimated socket size 180mm x 120mm
2. **Interchangeable DUT Thermal Adapter** - adapts to unique DUT size, thickness and shape requirements
3. **Interchangeable Contact Set** - adapts to DUT pin count, pitch, and pattern

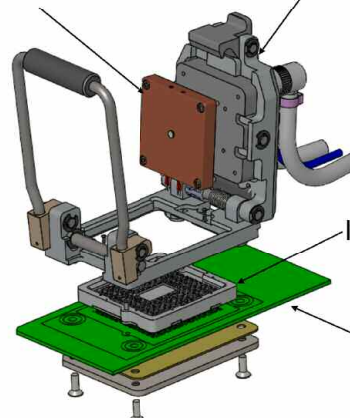


Example socket with liquid thermal solution



Interchangeable
DUT Thermal
Adapter

Socket Actuator
w/ Thermal Solution
Patent Pending



Interchangeable
Contact Set

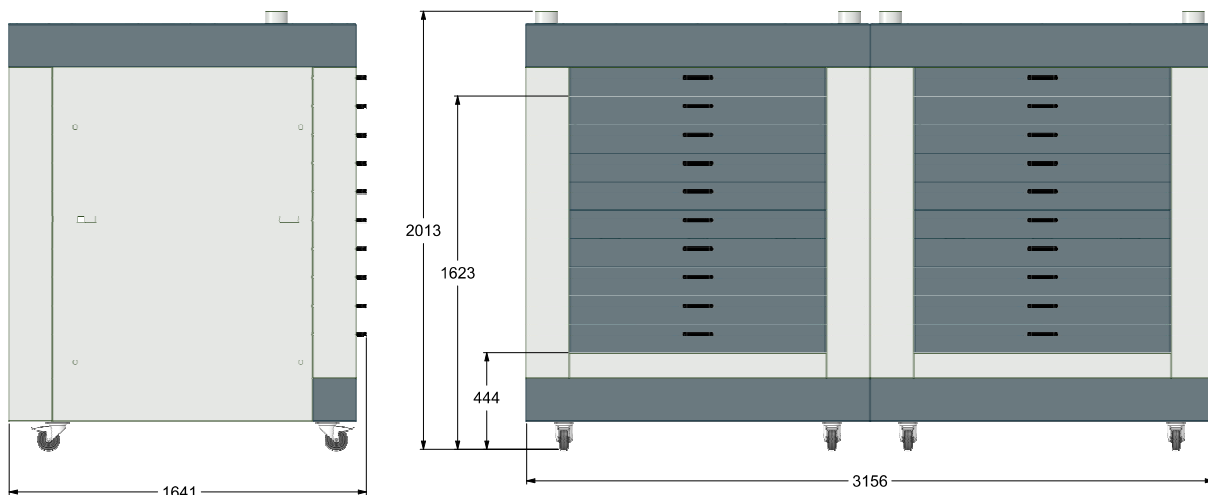
BIB PCB



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Reltech 9040 Ultra High Power HTOL System
20 Trays, 40 BIB's, 80 DUT's

Example of power supplies per DUT (600W/DUT)

| PSU | Volts | Current | Power |
|-----|-------------|---------|-------|
| V1 | 1.2v (Core) | 250A | 300W |
| V2 | 1.45v | 70A | 100W |
| V3 | 2.2v | 90A | 200W |
| V4 | - | | |
| V5 | - | | |

9000 Series HTOL Test Pattern Generator type: P4680

- ◆ Project re-programmable FPGA, PIC, ROM based control system
- ◆ 64 Vector Channels
- ◆ 16 Digital Control Channels
- ◆ 20MHz Vector Frequency
- ◆ 60 DUT signal monitor channels
- ◆ 200mA driver per vector channel (typical)
- ◆ Multi test mode operation e.g. MBIST, SCAN, PCIE, JTAG

9010 System Dimensions:

Height: 2019mm, Width: 1575mm,
Depth: 1641mm

9020 System Dimensions:

Height: 2019mm, Width: 3156mm,
Depth: 1641mm

HTOL System Configuration options:

- ◆ 9001 System: 1 HTOL Board (Evaluation/Debug system)
- ◆ 9020 System: 20 HTOL Boards (BIB's)
- ◆ 9040 System: 40 HTOL Boards (BIB's)

DUT Power Supplies per HTOL Board

- ◆ 5kW (2 x 2.5kW) bulk power supplies per HTOL tray
- ◆ Mother Daughter HTOL Board concept
- ◆ Point of load DC/DC converters fitted to HTOL board for minimal voltage drop at high current
- ◆ Capability up to 800W/per DUT
- ◆ No limitation on quantity of DUT power supplies



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