Test Engineering

Flying Probe

Boundary Scan

Custom Test Fixturing
Test Engineering Services

- Flying Probe In-Circuit Testing (Seica)
- Boundary Scan Programming & Testing (Corelis Software)
- Functional Testing
- Environmental (HASS/HALT)
- Test Fixtures (custom designed)
- DFT Analysis
Boundary Scan Testing
Boundary Scan Hardware and Software
Flying Probe In-Circuit Testing

- 4 Topside angled probes
- 1 Open Fix probe
- CCD camera at Probe 1
- 8 Fixed bottom channels
- 12-20 test/s speed
- 0.2 mils resolution
- 0.12 mils repeatability
- 16” X 24” test area
- 0.20” max. board thickness
- 0.90” max. height
- 4 mils min. pad size
- 12 mils min. pad pitch
- Automatic optical alignment
Flying Probe In-Circuit Testing
**Flying Probe In-Circuit Testing**

<table>
<thead>
<tr>
<th>FLYING PROBE</th>
<th>SPECS</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Probes</td>
<td>4 Top Probes</td>
</tr>
<tr>
<td>Open Fix Probes</td>
<td>1 Openfix probe</td>
</tr>
<tr>
<td>Test Area</td>
<td>16&quot;x24&quot; test area</td>
</tr>
<tr>
<td>Max. component height</td>
<td>0.9&quot;</td>
</tr>
<tr>
<td>Min. pad size</td>
<td>4 mils</td>
</tr>
<tr>
<td>Min. pad pitch</td>
<td>12 mils</td>
</tr>
<tr>
<td>Program and Debug</td>
<td>Depends on # of components</td>
</tr>
<tr>
<td>Other Tests</td>
<td>Flying Probe</td>
</tr>
</tbody>
</table>
Environmental Stress Screening

-75°C to +177°C temperature range
- 20°C per minute rate
- 8 cu. ft interior
- Liquid N2 cooling system
- Watlow Product Safeguard
- Watview Human/Machine Interface
- Computer-controlled system
- Chart recorder
Environmental Stress Screening
# Environmental Chamber

<table>
<thead>
<tr>
<th>ESS CHAMBER</th>
<th>SPECs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior size</td>
<td>8 cu. ft.</td>
</tr>
<tr>
<td>Cooling system</td>
<td>1 tank of Liquid Nitrogen</td>
</tr>
<tr>
<td>Data collection</td>
<td>Manual</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-75 to 177 C</td>
</tr>
<tr>
<td>Heat up time (empty)</td>
<td>-68 to 177 C = 65 mins.</td>
</tr>
<tr>
<td>Features</td>
<td>Temperature cycling</td>
</tr>
</tbody>
</table>
Other Test Equipment

**OSCILLOSCOPE**

- 100 MHz, 2 CHANNEL

**POWER SUPPLY**

- 35V, 6A, Slow ramp rate

**SIGNAL GENERATOR**

- 2 MHz (Customer-owned)

**Programming Modules**