# STI 3000 Standard Density Wafer Probe Test System

## For

**MEMS** and **ASIC Products**

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<th><strong>The STI3000 Wafer Probe Test System</strong></th>
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<td>Our wafer-level MEMS and mixed signal ASIC probe test system provides high throughput and dynamic test coverage for measuring:</td>
<td>We utilize electrostatic stimulus at the wafer-level to perform comprehensive dynamic testing which provides detailed measurements and characterizations such as:</td>
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## STI3000 System Benefits

- Dynamically measures MEMS on the wafer
- Adapts to any wafer handler
- No special power or size requirements
- Can characterize and map devices before going to packaging
- Can run traditional capacitance tests
- Improved test yields
- Sensor element design validation
- Reduces manufacturing costs
- Exceptional return on investment

## STI 3000 System Includes:

- STI 3000 Probe Test Head
- STI 9000 Mixed-Signal Test Module
- Filter Gain Calibration Module
- Communication and Power Supply Modules
- PC & Software

## STI 3000 Example Test Flow and Test Data

### Example Test Flow

1. **Static Test**
2. **Dynamic Response Test**
3. **Ramp Test**
4. **Sweep Test**

### Example Test Output

- **Leakage Capacitance**
- **Resonant Frequency, Q, Damping, Phase**
- **Spring Constant, Stiction, Hysteresis, More...**
- **f-3dB freq**

For more information, contact your Solidus Technologies, Inc. Representative

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### Analog Resources

**Parameter:** Data Rate, Analog Bandwidth, Resolution, Output Ranges, Setting Time

**Specification:** DC to 500 kHz; 2 MHz max.

### Capacitance Measurement Resources

**Parameter:** Measure Capacitance, Capacitance Resolution

**Specification:** Up to 1 MHz, 16-bit

### Eight Parametric Measurement Units

**Parameter:** Forcing Voltage, Measure Output, Sensitivity, Full Scale Output, Settling Time

**Specification:** 0 to 5.0 V, 16-bit

### Eight Simultaneous Digitizers

**Parameter:** Sample Rate, Buffer Depth, Analog Input Range, Anti-Aliasing Filters, Gain Stage

**Specification:** +/2.5 V F.S., 8th order low pass, 10 kHz to 50 kHz, 10 kHz step

### System Resources

**Parameter:** Force Voltage, Measure Output, Sensitivity, Full Scale Output, Settling Time, Measure Capacitance, Capacitance Resolution

**Specification:** +1.0 V to +16.0 V; Step 2 mV @ 80 mA, 15 mS (to 100A)

### Digital Resources

**Parameter:** Pattern Width, Pattern Depth, Vector Rates

**Specification:** 16 bit, mode dependent

### Digital Response

**Parameter:** 1 Hz to 100 KHz, 100 KHz to 1 MHz, 1 MHz to 10 MHz, 10 MHz to 20 MHz

**Specification:** step 500 Hz, step 2 kHz, step 20 kHz, step 200 kHz

### Vector-Synchronous and Asynchronous DUT Clocks

**Parameter:** Stimulus Width, Stimulus Depth, Vector Rates

**Specification:** 18 bits, 256 K, 1 Hz to 30 MHz

### Arbitrary Waveform Generator

**Parameter:** Force Voltage Range, Current Measurement Range 1, Current Measurement Range 2, Current Measurement Range 3

**Specification:** +/- 8 V, Accuracy: +/- 2 mV; +/- 20 mA; Accuracy: +/- 5 µA; +/- 200 µA; Accuracy: +/- 50 nA

### Parametric Measurement Unit: Force Voltage / Measure Current

**Parameter:** Data Rate, Analog Bandwidth, Resolution, Output Ranges, Setting Time

**Specification:** +/- 5.0, 10.0, 20 V full scale

### Device Power Supplies

**Parameter:** DPS1 and DPS2 Range, DPS1 and DPS2 Accuracy, DPS3 Range, DPS3 Accuracy, DPS4 Range, DPS4 Accuracy

**Specification:** Set point +/-4.0 mV, current readback +/-25 µA, voltage readback +/-4.0 mV

### Force Current Resources

**Parameter:** Range 1, Range 2, Range 3, Range 4

**Specification:**
- $I_c$ (range) -8 to +8 mA; -800 to +800 µA; -80 to +800 µA; 8.0 to +8 mA
- $I_c$ (accuracy) +/- 2 µA; +/- 200 nA; +/- 20 nA; +/- 2 nA
- $I_c$ (resolution) +/- 1 µA; +/- 100 nA; +/- 10 nA; +/- 1 nA

Note: Current force $V_{clamp}$ is variable from ±3.0 V to ±20.0 V. Positive and negative clamp voltages may be set to track, or may be varied independently.