Integra Series – Model 2701
Ethernet-based Multimeter/Data Acquisition System
The Model 2701 is the latest addition to Keithley’s popular Integra Series instruments line. All Integra Series products combine precision measurement, switching, and control in a single tightly integrated enclosure. Each one is based on a state-of-the-art 6½-digit, 22-bit integrating A/D converter to ensure superior measurement precision and noise rejection. With the addition of Ethernet communications capability, the Model 2701 opens the door to making precision measurements easily and economically just about anywhere.
The Model 2701 Ethernet-based Multimeter/Data Acquisition System brings superior measurement integrity together with remote measurement capabilities in one highly integrated system. It’s ideal for distributed data acquisition applications because it provides stable, 6½-digit measurements, while taking advantage of a facility’s existing network architecture and a PC’s built-in Ethernet interface. The Model 2701 is designed to connect directly to an Ethernet port—there’s no need for additional interface cards, proprietary cables, or software—so it’s quick and economical to create virtually any required system configuration.

Each Model 2701 can be configured with up to 80 differential channels, depending on the plug-in switching/control modules used. Each channel provides built-in signal conditioning and can be configured independently for any of 14 measurement/control functions:

- Temperature with thermocouples, RTDs, or thermistors
- DC, AC volts
- DC, AC current
- 2-wire or 4-wire Ω
- Frequency
- Period
- Continuity
- Event counter/totalizer
- Digital I/O

The Model 2701 addresses the testing needs of a wide range of test, measurement, control, and data acquisition applications:

**Burn-in/stress testing applications**
- Increases test productivity and reduces costs by allowing centralized control of multiple test stands.
- Stores up 450,000 time-stamped readings in battery-backed memory in case of power interruptions during long test cycles.
- Eliminates yield losses due to false failures.

**Industrial monitoring and control applications**
- Supports continuous monitoring of industrial equipment on multiple channels for extended periods.
- Offers stable, high precision measurements, even in noisy industrial environments.
- Simplifies configuring systems for long distance or distributed applications.
- Allows pre-programming limits for automatic alarm notification.

**Research and development applications**
- Increases research productivity and decreases costs by combining remote communications with precise measurements.
- Provides a modular, easily scalable solution.
- Supports remote equipment diagnostics and monitoring of lab environments (temperature, humidity, presence of gases) economically.
- Makes high precision affordable with a low cost per channel.
Fast, long distance communication meets high measurement accuracy

If there’s a power failure, valuable data is protected with the battery-backed non-volatile memory and scans can automatically be resumed right where they stopped when power returns.

Built-in signal conditioning and statistical analysis is configurable per channel for maximum flexibility.

Large memory buffer (450,000 readings) for storing data without tying up the network.

Open lead detection protects against false readings due to lead disconnections.

Immediate alarm notification independent of the PC provided by built-in open-collector digital I/O lines for control, external triggering, and HI/LO alarm/limit outputs.

Fast and convenient 10/100BaseTX Ethernet with TCP/IP protocol.

Fast, long distance communication meets high measurement accuracy

Its familiar DMM-like front panel scheme makes the Model 2701 easy to use on the bench or in the rack. Select or change functions with the press of a button.

Rugged 50-pin D-sub connectors ensure dependability and quick setup/teardown in production test racks.

Built-in relay cycle counters on each module for ease of maintenance.

Screw terminals use oversized connectors for easier, mistake-free wiring.

A variety of measurement and control modules makes it simple to mix, match, and change input signals or control lines as needed. Get up to 80 differential channels and up to 500 channels per second scanning rate.

Built-in signal conditioning and statistical analysis is configurable per channel for maximum flexibility.

If there’s a power failure, valuable data is protected with the battery-backed non-volatile memory and scans can automatically be resumed right where they stopped when power returns.
Versatile Integra Series plug-in modules for any application

Any of these modules can be plugged into either of the two slots in the Model 2701’s back panel. No special connection or software configuration is needed—just insert the modules and they are detected automatically and ready to run.

<table>
<thead>
<tr>
<th>Module</th>
<th># Differential Analog Inputs</th>
<th>Configuration</th>
<th>2- or 4-Pole</th>
<th>Type of Connector</th>
<th>Max. Voltage</th>
<th>Max. Switched Current</th>
<th>Switch Speed</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>7700</td>
<td>20</td>
<td>Multiplexer w/CJC</td>
<td>1 × 20 or two 1 × 10</td>
<td>Screw terminals</td>
<td>300V</td>
<td>1A</td>
<td>&lt; 3 ms</td>
<td>Automatic CJC</td>
</tr>
<tr>
<td>7701</td>
<td>32</td>
<td>Multiplexer</td>
<td>1 × 32 or two 1 × 16</td>
<td>D-sub (IDC)</td>
<td>150V</td>
<td>1A</td>
<td>&lt; 3 ms</td>
<td>32 channels of common-side 4-wire Ø</td>
</tr>
<tr>
<td>7702</td>
<td>40</td>
<td>Multiplexer</td>
<td>1 × 40 or two 1 × 20</td>
<td>Screw terminals</td>
<td>300V</td>
<td>1A</td>
<td>&lt; 3 ms</td>
<td>Maximum 125 VA. 2 current channels @ 3A.</td>
</tr>
<tr>
<td>7703</td>
<td>32</td>
<td>Reed Relay Multiplexer</td>
<td>1 × 32 or two 1 × 16</td>
<td>D-sub (solder or crimp)</td>
<td>300V</td>
<td>500mA</td>
<td>&lt; 1 ms</td>
<td>Reed relays</td>
</tr>
<tr>
<td>7705</td>
<td>NA</td>
<td>40 channel independent SPST</td>
<td>N/A</td>
<td>D-sub (solder or crimp)</td>
<td>300V</td>
<td>2A</td>
<td>&lt; 3 ms</td>
<td>Programmable for Form C</td>
</tr>
<tr>
<td>7706</td>
<td>20</td>
<td>Multiplexer w/CJC + Analog Output + Digital Outputs + Counter/Totalizer</td>
<td>1 × 20 or two 1 × 10</td>
<td>Screw terminals</td>
<td>300V</td>
<td>1A</td>
<td>&lt; 3 ms</td>
<td>Two ±12V analog outputs, 100 kHz counter, &amp; 16 digital outputs</td>
</tr>
<tr>
<td>7707</td>
<td>10</td>
<td>Digital I/O + Multiplexer</td>
<td>1 × 10 or two 1 × 5</td>
<td>D-sub (IDC)</td>
<td>300V</td>
<td>1A</td>
<td>&lt; 3 ms</td>
<td>32 digital I/O (35V, 100mA)</td>
</tr>
<tr>
<td>7708</td>
<td>40</td>
<td>Multiplexer w/CJC</td>
<td>1 × 40 or two 1 × 20</td>
<td>Screw terminals</td>
<td>300V</td>
<td>1A</td>
<td>&lt; 3 ms</td>
<td>Automatic CJC</td>
</tr>
<tr>
<td>7709</td>
<td>48</td>
<td>6 × 8 Matrix 2- or 4-pole</td>
<td>D-sub (IDC)</td>
<td>300V</td>
<td>1A</td>
<td>&lt; 3 ms</td>
<td>Daisy chain for larger matrix</td>
<td></td>
</tr>
<tr>
<td>7710</td>
<td>20</td>
<td>Solid-state Multiplexer w/CJC</td>
<td>1 × 20 or two 1 × 10</td>
<td>Removable Screw terminals</td>
<td>60V</td>
<td>0.1A</td>
<td>&lt; 0.5 ms</td>
<td>Long relay life, higher speed 500 channels/s</td>
</tr>
<tr>
<td>7711</td>
<td>2GHz Dual 1×4 Multiplexer</td>
<td>Insertion Loss VS WR Crosstalk</td>
<td>SMA</td>
<td>60V</td>
<td>0.5A</td>
<td>&lt; 10 ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7712</td>
<td>3.5GHz Dual 1×4 Multiplexer</td>
<td>Insertion Loss VS WR Crosstalk</td>
<td>SMA</td>
<td>42V</td>
<td>0.5A</td>
<td>&lt; 10 ms</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Call Keithley or visit www.keithley.com to receive your free Model 2701 technical data book, which offers more technical details about these modules, applications, and available accessories.
The Model 2701’s versatility makes it ideal for use on the factory floor, in quality control labs, and in R&D settings. Here are some typical applications:

**Electronic manufacturing burn-in/stress testing**

Electronic manufacturing facilities rely on burn-in/stress testing (often referred to as HALT/HASS testing) to ensure long-term product reliability. Performing these tests efficiently demands the ability to make remote measurements in widely distributed burn-in chambers from a central location. Multiple Model 2701s can be placed nearby each burn-in chamber and can be networked to a central PC. In addition, The Model 2701 combines 14 measurement/control functions and built-in signal conditioning with high measurement stability and repeatability to eliminate yield losses due to false failure. It offers up to 80 channels of differential measurements with a far lower cost per channel than competitive solutions. A battery-backed memory provides secure data storage in case of power interruptions.

**Industrial monitoring and control applications**

To increase the efficiency and profitability of industrial equipment such as generators, engines, pumps, and motors, multiple channels must be monitored continuously for extended periods, often in noisy or hard-to-reach environments where PCs and operators are impractical. The Model 2701 can be placed near the machine and its data can be shared over the company’s Intranet. It also provides 6½-digit (22-bit) integrated measurements for superior noise immunity and a solid-state switching option for long life and extended reliability. Built-in alarm limits and analog triggers can be pre-programmed per channel for automatic notification, without PC intervention, when critical events occur.

**Research and development**

To validate and characterize a system design or to monitor lab environments remotely (i.e., for humidity, temperature, or the presence of CO or other volatile gases), researchers and lab users need long distance remote measurement of multiple channels in a modular, easily scalable form factor. The Model 2701 connects to the lab’s network drop and combines high measurement accuracy with a choice of twelve plug-in modules for greater measurement flexibility. Its low cost per channel makes the Model 2701 an affordable solution for labs with limited equipment budgets.

Call or visit [www.keithley.com](http://www.keithley.com) to receive a free white paper: “Making AST/Burn-in Testing More Productive with Ethernet-based Instruments.”
Ideal for single- or multi-unit distributed applications

The Model 2701 is an Ethernet-based instrument, so it can be used in a variety of network applications. It can be configured on its own dedicated network or as part of a corporate network. In either case, just configure the network parameters from the front panel or the built-in Web page (IP address, subnet mask, gateway) to get it up and running on the network.

Convenient straight-through connection
With a Model 2701, there is no need to open a PC or install separate communication interfaces such as GPIB boards. Just connect the Model 2701 directly to the PC’s Ethernet port via a crossover RJ-45 cable, which is included with the Model 2701.

Multiple units distributed with a hub and a central computer
Take advantage of the long distance and speed capabilities of Ethernet to distribute multiple Model 2701s using a standard hub. There’s no need to dedicate one PC for each test station—one central PC can control many Model 2701s, increasing equipment productivity and decreasing cost.

Wider distribution using the corporate network
Use the corporate network infrastructure to connect Model 2701s to any network drop in a building. The Model 2701s will then be able to acquire data and send it to any PC in the building. To prevent other users from interfering with its data, a Model 2701 can be password protected so that only permitted users can connect to the unit. For additional security, only one PC at a time can control the 2701.

Call Keithley or visit www.keithley.com to order a free Model 2701 application note on networking principles.
Powerful, easy-to-use software tools

The Model 2701 offers a wide range of software tools, including free start-up software and drivers and more advanced optional packages. All these software tools are designed to communicate with the instrument through the industry-standard Windows TCP/IP socket interface.

Free built-In Web diagnostic tool

To start communicating with the Model 2701, simply start Microsoft® Internet Explorer® on a PC and type the instrument’s IP address into the URL line. The built-in web diagnostic interface allows for easy communication and debugging, without the need to install external software. This interface makes it easy to read and set network parameters such as IP address, subnet mask, gateway, MAC address, calibration dates, and other data stored in the Model 2701. It also takes readings from the instrument and allows the user to send command strings and receive data.

Free customizable start-up software

This free TestPoint runtime offers basic datalogging capabilities that can get a system “up & running” almost immediately. With just a few clicks of the mouse, this software can confirm the system’s hardware, wiring, communications, and software drivers are installed and operating correctly. It can also configure instrument functions and perform simple data acquisition tasks. Data from multiple channels can be saved to disk and up to eight channels of data can be graphed automatically. If the application demands greater functionality, this runtime can be modified with the TestPoint application development package.

ExceLINX-1A

For advanced datalogging tasks, this powerful and economical add-in utility for Microsoft® Excel makes it simple to acquire data from the Model 2701 directly into Excel, then employ Excel’s graphic, charting, and analysis capabilities to turn that data into useful information. No programming is required—a few mouse clicks are all it takes to configure channels, set parameters, configure triggers, and scan lists. ExcelLINX-1A can control up to three Model 2701s and is sold separately.
TestPoint application development package

If the free start-up software doesn’t provide a feature the job demands, there’s no problem—just use the economical TestPoint application development package to modify it. TestPoint’s object-oriented, drag-and-drop technology offers the flexibility needed to build basic systems quickly, without in-depth programming. Expanding TestPoint applications is easy too, with database and statistical process control toolkits. TestPoint and additional toolkits are sold separately.

Free IVI (VISA-Based) instrument driver

For larger or customized systems, programmers can take advantage of this IVI instrument driver, designed for use with application development environments such as Visual Basic®, Visual C/C++®, LabVIEW™, LabWindows™/CVI, and TestPoint™. This IVI-style driver (VISA based) supports all of the instrument’s functionality and comes with numerous programming examples to help programmers get started quickly. The standard Windows socket interface can also be used to program the Model 2701 directly with standard command strings (SCPI).

Call Keithley or visit www.keithley.com to order a free Model 2701 application note that discusses programming multiple 2701s using the IVI/VISA driver, as well as the direct Windows socket interface.
Other Integra Series Systems
The Models 2700 and 2750—GPIB/RS-232 systems

Built on the same basic platform as the Model 2701, the Model 2700 and 2750 share many of its measurement capabilities and programming commands. They also share the same plug-in modules. Although the Model 2700 and 2750 do not support Ethernet, they do support other communication protocols, including GPIB/IEEE-488 and RS-232.

Model 2700 Multimeter/Data Acquisition System
The Model 2700 is a lower cost, two-slot GPIB/RS-232 system that can accommodate up to 80 channels or 96 matrix crosspoints. It has the same footprint as the Model 2701 and packs the accuracy, convenience, and traceability of a true 6½ digit (22-bit) DMM in a half-rack-sized unit at a price that’s comparable to a high performance data acquisition plug-in board.

Model 2750 Multimeter/Switch System
The Model 2750 is a high channel count measurement and control system for larger ATE, switching, and data acquisition applications. The Model 2750 offers five slots for up to 200 channels of differential measurement and 240 matrix crosspoints. It also features low ohms capabilities (1µΩ sensitivity) for measurements of connectors, harnesses, squibs, semiconductors, and other low ohms devices.

Integra Systems Overview

<table>
<thead>
<tr>
<th>Model</th>
<th>Communication Bus</th>
<th>No. of Slots</th>
<th>Max. No. of Channels or Crosspoints*</th>
<th>Battery-Backed Memory Buffer</th>
<th>Measurement Speed (single channel)</th>
<th>Scanning Rate** (Multiple channels)</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 2701</td>
<td>Ethernet, RS-232</td>
<td>2</td>
<td>80 channels or 96 crosspoints</td>
<td>450,000 readings</td>
<td>3500 rdgs/s</td>
<td>500 chan/s</td>
<td>Built-in Web tool</td>
</tr>
<tr>
<td>Model 2700</td>
<td>GPIB, RS-232</td>
<td>2</td>
<td>80 channels or 96 crosspoints</td>
<td>55,000 readings</td>
<td>2000 rdgs/s</td>
<td>180 chan/s</td>
<td></td>
</tr>
<tr>
<td>Model 2750</td>
<td>GPIB, RS-232</td>
<td>5</td>
<td>200 channels or 240 crosspoints</td>
<td>110,000 readings</td>
<td>2500 rdgs/s</td>
<td>200 chan/s</td>
<td>Low ohms capabilities, 1 µohm sensitivity</td>
</tr>
</tbody>
</table>

*Crosspoints possible using the Model 7709, a 6x8 matrix switch module.

** Scanning rates vary per plug-in module, mainframe and measurement function.

Call Keithley or visit www.keithley.com for more technical information on the Model 2700 and Model 2750.
**Model 2701 Condensed Specifications**

**DC VOLTAGE**
1000V protection all ranges; A/D Linearity of 2ppm rdg + 1ppm rmg; 120000 max counts

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy (90 day rdg + rmg)</th>
<th>Accuracy (1 year rdg + rmg)</th>
<th>Input Voltage</th>
<th>Burden Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>100.0000mV</td>
<td>10mV</td>
<td>0.0025% + 0.0050%</td>
<td>0.0050% + 0.0050%</td>
<td>10Ω or &gt;10GΩ</td>
<td>±10°C</td>
</tr>
<tr>
<td>1.000000V</td>
<td>1μV</td>
<td>0.0025% + 0.0007%</td>
<td>0.0030% + 0.0007%</td>
<td>10Ω or &gt;10GΩ</td>
<td>±10°C</td>
</tr>
<tr>
<td>10.00000V</td>
<td>10μV</td>
<td>0.0020% + 0.0005%</td>
<td>0.0030% + 0.0005%</td>
<td>10Ω or &gt;10GΩ</td>
<td>±10°C</td>
</tr>
<tr>
<td>100.0000V</td>
<td>100μV</td>
<td>0.0055% + 0.0009%</td>
<td>0.0045% + 0.0009%</td>
<td>10Ω</td>
<td>±10°C</td>
</tr>
</tbody>
</table>

**AC CURRENT**
True RMS; 5:1 Crest Factor

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Frequency Range</th>
<th>Accuracy (1 year rdg + rmg)</th>
<th>Input Voltage</th>
<th>Burden Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>1μA</td>
<td>10Hz – 5kHz</td>
<td>±0.3% + 0.04%</td>
<td>±100V / 120V</td>
<td>±10°C</td>
</tr>
<tr>
<td>5A</td>
<td>10μA</td>
<td>10Hz – 5kHz</td>
<td>±0.16% + 0.00%</td>
<td>±100V / 120V</td>
<td>±10°C</td>
</tr>
</tbody>
</table>

**DC SINGLE CHANNEL READING RATES**

<table>
<thead>
<tr>
<th>Function</th>
<th>Digits</th>
<th>Readings/sec</th>
<th>NPLC</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCV, DCL</td>
<td>6.5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>2W Ohms,</td>
<td>6.5</td>
<td>50</td>
<td>1</td>
</tr>
<tr>
<td>Thermocouple,</td>
<td>5.5</td>
<td>500</td>
<td>0.1</td>
</tr>
<tr>
<td>Thermistor</td>
<td>4.5</td>
<td>3000</td>
<td>0.01</td>
</tr>
<tr>
<td>4W Oomp, RTD</td>
<td>6.5</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>6.5</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>5.5</td>
<td>18</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**MULTICHA NEL RATE, INTO AND OUT OF MEMORY TO ETHERNET**

<table>
<thead>
<tr>
<th>NPLC</th>
<th>Digits</th>
<th>Filter</th>
<th>NMRR</th>
<th>CMRR</th>
<th>RMS Noise</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>6.5</td>
<td>50</td>
<td>100B</td>
<td>140B</td>
<td>&lt;2µV</td>
</tr>
<tr>
<td>1</td>
<td>6.5</td>
<td>Off</td>
<td>90B</td>
<td>140B</td>
<td>&lt;6µV</td>
</tr>
<tr>
<td>0.1</td>
<td>5.5</td>
<td>Off</td>
<td>–</td>
<td>80B</td>
<td>&lt;40µV</td>
</tr>
<tr>
<td>0.01</td>
<td>4.5</td>
<td>Off</td>
<td>–</td>
<td>80B</td>
<td>&lt;300µV</td>
</tr>
<tr>
<td>0.002</td>
<td>3.5</td>
<td>Off</td>
<td>–</td>
<td>60B</td>
<td>&lt;1mV</td>
</tr>
</tbody>
</table>

**SYSTEM FEATURES**

- Expansion slots: 2
- Scanning Channels: Up to 80 differential
- Trigger Source: External digital input, front panel keypad, channel monitor, interval timer, Ethernet/RJ-45, Trigger Link, immediate
- Scan Count: 1 to 450,000 or continuous
- Scan Interval: 0 to 99 hours, msec step size
- Channel Delay: 0 to 99999999 sec per channel; msec step size
- Configuration: Per channel for measurement setups, math, and limits
- Power Fail Recovery: Resume scanning sequence, configuration and stored data are preserved
- Power up Memory: 4 user configurations with labels
- Real Time Clock: Included, use to timestamp readings
- Data Storage: Non-volatile 450,000 reading buffer with timestamp, continuous file, query while filling, min/max/avg/std dev
- Alarm Limits: 2 HI and 2 LO limits per channel, selectable polarity
- Digital Inputs: 2 TTL level – external trigger plus interlock
- Digital Outputs: 4 TTL level – selectable polarity, HILO limit configurable
- Master Alarm: 1 TTL level output toggles when any HI/LO limit is exceeded
- Front Panel Lock: Software enabled
- Communication: Ethernet TCP/IP (10/100BaseTX auto sense), RS-232, RJ-45 5-meter crossover cable included
- IP Configuration: Static or DHCP
- Password protection: Up to 11 characters
- per-channel Math: mX+b, %
- Multi-channel Math: Ratio, Average
- Resolution: 0± digit with 20% overrange; 28-bit readings
- Software: Built-in web page in HTML and VBscript requires Microsoft IE 5.0 or higher
- TestPoint-based start-up applications, LabVIEW TestPoint, LabWindows/CVI, Visual Basic, C/C++ driver. Requires Pentium 233 MHz or higher, Win 98, NT or higher

**GENERAL INFORMATION**

- Power Supply: 100V / 120V / 220V / 240V / ±10%
- Line Frequency: 45Hz to 66Hz or ±10%
- Operating Environment: 0°C to 50°C
- Size: 89mm H x 213mm W x 370mm D
- Warranty: 3 years on mainframe, 1 year on 77xx Expansion
- Measurement & Control Modules
- Safety: EN61010-1 CAT I
- EMC: EN 61326-1

Specifications subject to change without notice.

*Call or visit www.keithley.com for detailed specifications.
All the support you need

Register for a free online interactive demo
Keithley’s engineering experts offer free online demonstrations of the Model 2701 hardware and software. All it takes to participate is an Internet connection and a telephone to watch the demonstration and communicate with the moderator. Call us at 1-888-KEITHLEY (534-8453) or contact us via our website, www.keithley.com, to register for a session.

Request more technical information
Detailed information about the Model 2701 is free for the asking, including a technical data book, which supplies full specifications for mainframes and modules, application examples, and other information that can help you choose the most appropriate modules and accessories. White papers, application notes, and articles are also available. Request them by calling 1-888-KEITHLEY (534-8453) or by visiting www.keithley.com

Informative reference materials
Visit www.keithley.com to access our library, which offers many valuable reference works:
• Application notes and white papers that provide practical, real-world answers to many application questions
• Data Acquisition and Control Handbook
• Low Level Measurements
• Switching Handbook

A greater measure of confidence
With more than a half-century of expertise in making demanding measurements, Keithley offers its customers a greater measure of testing confidence on production floors, in quality control labs, and in R&D labs. For more information on how Keithley test solutions can help you keep pace with changing technologies, call your local Keithley sales engineer or visit our website.

Service you can depend on
When you need help, contact us at www.keithley.com or call us at 1-888-KEITHLEY (534-8453). Whatever the application, Keithley’s application engineers are ready to help you meet its challenges, before and after the sale. We can suggest the most effective system configurations and provide prompt, reliable applications support once your system is set up. The next time you’re faced with a challenging application, give us a call. We’ll offer you a cost-effective solution that will help you improve your product quality, throughput, and yield.

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