### ISSI in IoT Applications

<table>
<thead>
<tr>
<th>Vertical</th>
<th>Description</th>
<th>Analog</th>
<th>Flash</th>
<th>DRAM</th>
<th>SRAM</th>
<th>Application Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities Evolved</td>
<td>Smart City, Smart Building, Smart Home, Smart Lighting</td>
<td>HBlED</td>
<td>FxLED</td>
<td>Audio</td>
<td>DC/DC</td>
<td>Thermostat, Security camera, LED lightbulbs, wireless gateways [Zigbee/Zwave], WiFi thermostats, Building control/monitor</td>
</tr>
<tr>
<td>Industrial Evolved</td>
<td>Smart Factory, Machine Automation</td>
<td>HBlED</td>
<td>FxLED</td>
<td>Audio</td>
<td>DC/DC</td>
<td>Control panel, Computer vision, Robotics, PLCs</td>
</tr>
<tr>
<td>Retail Evolved</td>
<td>Smart Retail, Smart Supply Chain, Smart Fast Food</td>
<td>HBlED</td>
<td>FxLED</td>
<td>Audio</td>
<td>DC/DC</td>
<td>Kiosk, Theft Alarm, Updateable price tags [LCD screen], POS machines, Inventory tracking</td>
</tr>
<tr>
<td>Medical Evolved</td>
<td>Smart Healthcare, Smart Operating Room</td>
<td>HBlED</td>
<td>FxLED</td>
<td>Audio</td>
<td>DC/DC</td>
<td>Glucose meter, Pillow speaker, wireless medical devices, chemical/medical testing, hospital equipment</td>
</tr>
<tr>
<td>Environmental Evolved</td>
<td>Remote sensing</td>
<td>HBlED</td>
<td>FxLED</td>
<td>Audio</td>
<td>DC/DC</td>
<td>Monitoring equipment, hydro sensors, pH monitors, atmosphere/space satellites</td>
</tr>
<tr>
<td>Agriculture Evolved</td>
<td>Smart Farming, Intelligent Food Supply</td>
<td>HBlED</td>
<td>FxLED</td>
<td>Audio</td>
<td>DC/DC</td>
<td>LED grow light, Hydroponics, GPS, Crop/produce tracking</td>
</tr>
<tr>
<td>Transportation Evolved</td>
<td>Fleet Management, Automated Automotive</td>
<td>HBlED</td>
<td>FxLED</td>
<td>Audio</td>
<td>DC/DC</td>
<td>Telematics, Cabin lighting, Data logging, Driver Assistance, Autonomous, V2V</td>
</tr>
</tbody>
</table>

### Your Partner for the Long Drive
Advanced Memory Solutions
Innovative Analog & Mixed Signal Solutions

Contact: dram@issi.com • sram@issi.com • flash@issi.com • analog@issi.com • mcp@issi.com
1623 Buckeye Drive, Milpitas, CA 95035 • Tel: 408.969.6600 • www.issi.com • Feb. 2018
Features:
- Low-voltage Core and I/O Power Supplies
  VDD2 = 1.14-1.30V
  VDDCA/VDDQ = 1.14-1.30V
  VDD1 = 1.70-1.95V
- High Speed Un-terminated Logic
  [HSUL_12] I/O Interface
- Clock Frequency Range:
  10MHz to 533MHz
  [data rate range: 20Mbps to 1066 Mbps per I/O]
- Four-bit Pre-fetch DDR Architecture
- Multiplexed, double data rate, command/address inputs
- 4 or 8 internal banks for concurrent operation
- Bidirectional/differential data strobe per byte of data
  [DQS/DQS#]
- Programmable Read/Write latencies [RL/WL] and burst
  lengths [4,8 or 16]
- Per-bank refresh for concurrent operation
- ZQ Calibration
- On-chip temperature sensor to control self refresh rate
- Partial -array self refresh [PASR]
- Bank & Segment masking
- Deep power-down mode [DPD]
- Long-Term Support

Densities:
- 4Gb
- 2Gb
- 1Gb
- 512Mb
- 256Mb

Clock Frequencies:
- 533 MHz
- 400 MHz
- 333 MHz

Temperature Grades:
- Commercial [0°C to 85°C]
- Industrial [-40°C to 85°C]
- Automotive, A1 [-40°C to 85°C]
- Automotive, A2 [-40°C to 105°C]
- Automotive, A25 [-40°C to 115°C]
- Automotive, A3 [-40°C to 125°C]

Options:
- x16
- x32

Package:
- 134-ball BGA
- 168-ball PoP BGA
Automotive Market Support:
- ISSI is the Leading Innovator in Automotive Memories
- Long-term support and high quality leads to lower total cost of ownership
- ISSI pioneered 115°C temperature DRAM support, now adding 125°C
- The most complete line of Automotive SRAM, DRAM and Flash of any supplier
- Proven Long-Term support for Automotive products
- Automotive temperature ranges: 
  -40°C to +85°C, -40°C to +105°C, -40°C to +115°C, -40°C to +125°C
- Quality:
  - ISSI is ISO 9001:2000 certified
  - Production facilities ISO/TS16949 certified
  - Products satisfy AEC-Q000
- Cost-effective and highest quality products possible
- Leading memory supplier for over 25 years

**ISSI DDR3 Ordering Options**

<table>
<thead>
<tr>
<th>Density</th>
<th>Part Number</th>
<th>Voltage</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Gb</td>
<td>IS46TR16600B-125KBLA3</td>
<td>1.5V</td>
<td>DDR3-1600</td>
</tr>
<tr>
<td></td>
<td>IS46TR16600BL-125KBLA3</td>
<td>1.35V or 1.5V</td>
<td>DDR3-1600</td>
</tr>
<tr>
<td></td>
<td>IS46TR16640ED-15HBLA3</td>
<td>1.5V</td>
<td>DDR3-1333</td>
</tr>
<tr>
<td>2Gb</td>
<td>IS46TR16128C-125KBLA3</td>
<td>1.5V</td>
<td>DDR3-1600</td>
</tr>
<tr>
<td></td>
<td>IS46TR16128CL-125KBLA3</td>
<td>1.35V or 1.5V</td>
<td>DDR3-1600</td>
</tr>
<tr>
<td>4Gb</td>
<td>IS46TR16256A-125KBLA3</td>
<td>1.5V</td>
<td>DDR3-1600</td>
</tr>
<tr>
<td></td>
<td>IS46TR16256AL-125KBLA3</td>
<td>1.35V or 1.5V</td>
<td>DDR3-1600</td>
</tr>
<tr>
<td>8Gb</td>
<td>IS46TR16512B-125KBLA3</td>
<td>1.5V</td>
<td>DDR3-1600</td>
</tr>
<tr>
<td></td>
<td>IS46TR16512BL-125KBLA3</td>
<td>1.35V or 1.5V</td>
<td>DDR3-1600</td>
</tr>
</tbody>
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**ISSI LPDDR2 Ordering Options**

<table>
<thead>
<tr>
<th>Density</th>
<th>Part Number</th>
<th>Voltage</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>256Mb</td>
<td>IS46LD32800B-25BLA3</td>
<td>1.2V/1.8V</td>
<td>LPDDR2-800</td>
</tr>
<tr>
<td>512Mb</td>
<td>IS46LD32160A-25BLA3</td>
<td>1.2V/1.8V</td>
<td>LPDDR2-800</td>
</tr>
<tr>
<td>1Gb</td>
<td>IS46LD32320C-25BLA3</td>
<td>1.2V/1.8V</td>
<td>LPDDR2-800</td>
</tr>
<tr>
<td>2Gb</td>
<td>IS46LD32640B-25BLA3</td>
<td>1.2V/1.8V</td>
<td>LPDDR2-800</td>
</tr>
</tbody>
</table>

Notes:
1. Error Correcting [ECC] feature
2. Please contact ISSI for other ordering options

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