The OCT6100 Series of voice processors performs high quality echo cancellation and Voice Quality Enhancements (VQE). Now available in a lower power version as well as a lead-free option, the OCT6100 series also offers a full complement of tone and compression functions, all in a 16mm-square footprint - the smallest in the industry.

Superior Voice Quality
Octasic’s OCT6100 Series of voice processors supports densities from 16 to 672 channels on a single chip. Octasic’s echo cancellation algorithm uses a Least Squares adaptive filter with frequency awareness providing superior performance for today’s solutions. Independently or combined with other Octasic voice solutions, the OCT6100 Series can significantly increase density in voice gateways while offloading DSPs in order to maximize their use for other value added features.

Carrier-Grade Echo Cancellation
When tested by leading carrier labs, the Octasic algorithm received very high marks and was labeled a benchmark-algorithm for echo cancellation. Certified carrier grade, the solution is now deployed worldwide. The OCT6100 Series sets a new standard for voice quality in networks.

Extensive Monitoring and Debugging Features
OCT-VQM (voice quality monitoring system), the extensive monitoring and debugging system behind the OCT6100 Series, gives developers and field-support engineers the ability to monitor networks, record problems live and use Octasic services to ensure that the best voice quality possible is delivered to their clients. Devices are equipped with a software debugging port, available through an API socket, and providing complete access to VQM solutions.

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**Voice Quality Enhancement Features:**
- Automatic Level Control
- Acoustic Echo Control
- Adaptive Noise Reduction

### Product Family Matrix

<table>
<thead>
<tr>
<th>Feature</th>
<th>OCT610x</th>
<th>OCT611x</th>
<th>OCT612x</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Echo Cancellation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-672 channel echo canceller</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Fully G.168 2002 compliant</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Algorithm may be upgraded through the software API</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Acoustic echo control</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>128 ms tail per channel (for all channels)</td>
<td>4/6*</td>
<td>4/6*</td>
<td>4/6*</td>
</tr>
<tr>
<td><strong>Voice Quality Improvements Suite</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual gain control</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>G.169 automatic level control</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Automatic noise reduction</td>
<td>6**</td>
<td>6**</td>
<td>6**</td>
</tr>
<tr>
<td><strong>Auxiliary Telephony Functions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.168 tone detection:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2100 Hz (V.2x) w/ phase reversal</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>EC disabling as per G.168</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2100 Hz (V.2x) w/o phase reversal</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>NLP disabling as per G.168</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Advanced array of programmable tone detectors</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Tone generation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Large buffer playback for messages</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Advanced Voice Features</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audio conferencing for up to 448 channels N-way</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Tone removal for conferencing applications</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Background Music Solutions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music protection</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Colorful calling</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Compression</strong></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>ADPCM</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

*  Available with OCT61x4 and OCT61x6 only
**  Available with OCT61x6 only

Note: OCT611x and OCT612x are not available in 64ms versions.
All parts are available in the following channel counts: 672, 512, 256, 128, 64, 32, 16
Carrier-Grade Echo Cancellation

**Features**
- 16-672 channels of G.168-2002 echo cancellation
- 128 ms tail/channel (on all channel densities)
- Adaptive noise reduction
- Acoustic echo control
- Automatic level control (G.169)
- Field upgradable algorithm
- Integrated debugging and monitoring
- Audio conferencing
- Large buffer playback capabilities
- TFO solution available
- Extensive signaling tone detection/generation:
  - V. 25/V. 8 answer tone (w/ & w/o Phase reversal)
  - Text telephone signals V18 Annex A
  - SF signaling (2600 Hz)
  - SS7 COT tones
  - MF R1 as per Q.323
  - MF R2 as per Q.455
  - DTMF as per Q.24

**Application Examples**
- Wireless mobile services switching centers
- Echo and voice quality-processing network elements
- Voice conferencing systems
- Voice over Packet (VoP) enabled network elements:
  - Media Gateway
  - IP/PSTN Gateway
  - Voice/media Applications Server
  - Multi-service Switch
  - IP/PBX or IP enabled PBX
  - VoP Integrated Access Device

**Physical Specifications**
- 280 BGA package
- 1 DDR or 2 SDRAM parts required
  - 64 MB at 672 channels
  - 8MB at 32 channels
- Power
  - 3.3V and 1.8V or 1.2V power supply
  - Standard OCT6100, 1.8V 2W at 672 channels
  - 0.7W at 16 channels
  - Low Power Option: OCT6100L, 1.2V 1W at 672 channels
  - 0.32W at 16 channels
  - Requires 2.5V when used with DDR SDRAM

**Interfaces**
- TDM interface
  - 32 streams supporting 4,096 timeslots
  - 4-16 MHz clock
  - H.100/H.110 slave compatible
  - μ-Law/A-Law per channel support
- Asynchronous 16 bit interface for Motorola/Intel processors
- JTAG support
Octasic is a fabless semiconductor company specializing in silicon solutions that deliver exceptional voice quality for network equipment providers within the wireless, VoP, and TDM segments of the telecommunications industry. Octasic’s innovative approach involves processors that are optimized to perform key voice functions such as echo cancellation, packetization, and compression. These specialized, scalable-density devices allow communications equipment providers to benefit from optimal flexibility, and unmatched performance in terms of density, cost, and power consumption.

**OCT6100 ORDERING INFORMATION**

The OCT6100 Series can be ordered with various features. Please contact Octasic to determine which part best fits your requirements.

**OCT61XXLE-XXXX**

- **Feature content**
  (see table of features)
  0, 1 or 2
- **Tail length**
  2 = 64ms tail, Noise Reduction Not Included
  4 = 128ms tail, Noise Reduction Not Included
  6 = 128ms tail, Noise Reduction Included
- **RAM interface**
  S = SDR SDRAM
  D = DDR SDRAM
- **Channel Capacity**
  672, 512, 256, 128, 064, 032, or 016
- **L** is added to part number when Low Power version is required
- **E** is added to part number when Lead-Free part is required