3D PLUS is a world leading supplier of advanced high density 3D microelectronic products and Die and Wafer Level stacking technology meeting the demand for high reliability, high performance and very small size of today’s and tomorrow’s electronics. We offer standard products and custom System-in-Package (SiP) solutions based on our Space qualified and patented technology portfolio. The company is ISO 9001:2008 certified and its stacking technologies are qualified by European Space Agency for Space applications.

SPACE APPLICATIONS EXPERTISE

Recognized for their electrical performance, miniaturization, quality, reliability and radiation assurance level, 3D PLUS Space qualified products bring key advantages to all Space Application fields:

- **Consumer Applications**: telecommunication, navigation, internet...
- **Durable Development**: environment and climate monitoring
- **Defense & Security**: earth observation
- **Space transportation**: launchers and manned space vehicles
- **Science**: astronomy, space exploration and interplanetary missions

**FLIGHT PROVEN PRODUCTS**

With more than 125,000 modules in orbit today and a failure-free flight heritage of more than 17 years, 3D PLUS is the largest Space Qualified MCM manufacturer in Europe. 3D PLUS products are used by all the major space agencies and customers worldwide. They fly in numerous missions: Envisat, Galileo, AlphaSat, Rosetta, Worldstar 3C, Corot, SaRLupe, Bepi-Colombo, Pleiades, Ariane 5, HII-A, ISS, Goce, Kepler, Dawn, RadarSat, New Horizons, W3B, Goes-R, Sentinel, MSL, Juno, Gaia, X-SAT, Cast, SMOS, MMS, Planck, ReStore, Grace, Insight, Iridium Next, Osiris-Rex, Solar Orbiter, RASAT, SAGE III, DubaiSAT-2...
**LVT PRODUCT LINE**

Radiation hardened LVT line dual 16-bit transceiver and level shifters in a highly miniaturized package, bring the maximum area and weight savings for the space applications board's designs. Conceived for low power and very high speed applications.

Performs cold sparing and bus hold function enabling a two-way asynchronous communication between buses (address, data). The direction of data transmission is determined by a digital input. The two enable inputs can be used to disable the device, cold sparing the component to the bus. Enable inputs can be shorted together to provide 32-bit operation.

<table>
<thead>
<tr>
<th>LVT</th>
<th>TYPE</th>
<th>SUPPLY VOLTAGE (V)</th>
<th>PROPAGATION DELAY (ns)</th>
<th>RADIATION TOLERANCE</th>
<th>PACKAGE</th>
<th>TEMPERATURE</th>
<th>SCMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>3DLT16262/4X61693</td>
<td>Dual 16-bit/latch Transceiver</td>
<td>1.8 - 3.6</td>
<td>3.2</td>
<td>&gt;110</td>
<td>SOP62</td>
<td>C, I, M</td>
<td>3DPA-3580</td>
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<tr>
<td>3DLT16642/4X61695</td>
<td>Dual 16-bit/Storage Level Shifter</td>
<td>2.7 - 5.5</td>
<td>8</td>
<td>&gt;110, &gt;64</td>
<td>SOP62</td>
<td>C, I, M</td>
<td>3DPA-6290</td>
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<tr>
<td>3DLT16642/4X61696</td>
<td>Dual 16-bit/Storage Level Shifter</td>
<td>1.8 - 3.6</td>
<td>5.5</td>
<td>&gt;110</td>
<td>SOP62</td>
<td>C, I, M</td>
<td>3DPA-6700</td>
</tr>
</tbody>
</table>

**KEY FEATURES**
- Extended Voltage Range
- High Current Driving Capability (up to 24 mA)
- Ultra Low Power Consumption
- High Speed Outputs
- Bus Hold Provided on Both Sides
- Cold Spare Function
- Space Quality Grade
- Radiation Hardened Die
- Compact Size and Low Weight
- Worldwide Delivery Guaranty

**SERDES PRODUCT LINE**

The 21:3 radiation tolerant Serializer/Deserializer interface modules meet the demands for high-speed and reliable data communications preserving signal integrity.

Our SERDES modules convert 21-bit LVTTL parallel clock and data to 3-LVDS high-speed serial data channels in a highly miniaturized package. Nominal and Redundant designs have been conceived in one single module. The module also includes a Power Down control for both Nominal and Redundant devices.

<table>
<thead>
<tr>
<th>SERDES</th>
<th>TYPE</th>
<th>SUPPLY VOLTAGE (V)</th>
<th>DATA THROUGHPUT (Gbps)</th>
<th>RADIATION TOLERANCE</th>
<th>PACKAGE</th>
<th>TEMPERATURE</th>
<th>SCMP</th>
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<tbody>
<tr>
<td>3D3LV21721VS2622</td>
<td>21:3 Serializer</td>
<td>3.3</td>
<td>1.428</td>
<td>&gt;110</td>
<td>SOP62</td>
<td>C, I, M</td>
<td>3DPA-3528</td>
</tr>
<tr>
<td>3D3LV21721VS2623</td>
<td>3:1 Serializer</td>
<td>3.3</td>
<td>1.428</td>
<td>&gt;67</td>
<td>SOP62</td>
<td>C, I, M</td>
<td>3DPA-3528</td>
</tr>
</tbody>
</table>

**KEY FEATURES**
- Up to 1.428 Gb/s Data Rate
- PLL Frequency Range 20 to 68 MHz
- Low Power Consumption
- Power-down Mode
- Requires no External Components
- Rising Clock Edge Trigger
- Space Qualified Technology
- Radiation Tolerant (TID, SEE)
- Compact Size and Low Weight
- Worldwide Delivery Guaranty

**LVDS PRODUCT LINE**

The LVDS technology provides the benefits of high-speed, low-power consumption, low-EMI, simple termination and standardization for the high-speed data transmission solutions.

3D PLUS Radiation Tolerant and Space Qualified LVDS line drivers and receivers embed 8 or 4 LVDS channels in a single highly miniaturized packaging, enabling the maximum area and weight savings for the space applications board’s designs. They are available in a variety of temperature ranges and with a single power supply of 3.3V.

<table>
<thead>
<tr>
<th>LVDS</th>
<th>TYPE</th>
<th>IOv</th>
<th>SUPPLY VOLTAGE (V)</th>
<th>PROPAGATION DELAY (ns)</th>
<th>RADIATION TOLERANCE</th>
<th>PACKAGE</th>
<th>TEMPERATURE</th>
<th>SCMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D3LV21721VS2622</td>
<td>Octal Driver</td>
<td>3.3</td>
<td>&gt;800</td>
<td>&gt;100</td>
<td>&gt;60</td>
<td>SOP62</td>
<td>C, I, M</td>
<td>3DPA-3528</td>
</tr>
<tr>
<td>3D3LV21721VS2623</td>
<td>Octal Receiver</td>
<td>3.3</td>
<td>&gt;800</td>
<td>&gt;100</td>
<td>&gt;60</td>
<td>SOP62</td>
<td>C, I, M</td>
<td>3DPA-3528</td>
</tr>
<tr>
<td>3D3LV21721VS2642</td>
<td>Quad Driver &amp; Receiver</td>
<td>3.3</td>
<td>&gt;800</td>
<td>&gt;100</td>
<td>&gt;60</td>
<td>SOP62</td>
<td>C, I, M</td>
<td>3DPA-3528</td>
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<tr>
<td>3D3LV21721VS2624</td>
<td>Quad Driver</td>
<td>3.3</td>
<td>&gt;800</td>
<td>&gt;100</td>
<td>&gt;60</td>
<td>SOP62</td>
<td>C, I, M</td>
<td>3DPA-3528</td>
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<tr>
<td>3D3LV21721VS2625</td>
<td>Quad Receiver</td>
<td>3.3</td>
<td>&gt;800</td>
<td>&gt;100</td>
<td>&gt;60</td>
<td>SOP62</td>
<td>C, I, M</td>
<td>3DPA-3528</td>
</tr>
<tr>
<td>3D3LV21721VS2626</td>
<td>Quad Driver &amp; Receiver</td>
<td>3.3</td>
<td>&gt;800</td>
<td>&gt;100</td>
<td>&gt;60</td>
<td>SOP62</td>
<td>C, I, M</td>
<td>3DPA-3528</td>
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<tr>
<td>3D3LV21721VS2627</td>
<td>Quad Driver</td>
<td>3.3</td>
<td>&gt;800</td>
<td>&gt;100</td>
<td>&gt;60</td>
<td>SOP62</td>
<td>C, I, M</td>
<td>3DPA-3528</td>
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<tr>
<td>3D3LV21721VS2628</td>
<td>Quad Receiver</td>
<td>3.3</td>
<td>&gt;800</td>
<td>&gt;100</td>
<td>&gt;60</td>
<td>SOP62</td>
<td>C, I, M</td>
<td>3DPA-3528</td>
</tr>
</tbody>
</table>

**KEY FEATURES**
- Very High Density – small footprint
- High Speed Performance: > 400 Mbps (200 MHz switching rates)
- 3.3V Power Supply
- Cold Sparing Capability
- Ultra Low Power Dissipation
- Excellent Differential Skew and Propagation Delay
- Compatible with IEEE 1596.3 SCI and ANSI/TIA/EIA-644 LVDS standards
- Suitable for SpaceWire data links
- Radiation Tolerant (TID, SEE)
- Space Quality Level - ESA Qualified Technology
- Very Long Life Time Electronics (Technology proven for 15 to 18 years missions in Space)
- Long Term Supply
- Worldwide Delivery Guaranty

The devices are offered with standard SOP footprint for high resistance SMT assembly and for withstanding harsh thermal and mechanical environments. 3D PLUS LVDS products are used for high speed point-to-point interface in a variety of high performance digital electronics in all the space applications fields: science and deep space missions, Earth observation, navigation, launchers and manned space vehicles.

**QUALITY GRADES**
- C : Commercial (0°C to +70°C)
- I : Industrial (-40°C to +85°C)
- M : Military (-55°C to +125°C)
- S : Specific Temperature Range

**ORDERING INFORMATION**


Note 1: Total Ionizing Dose Tolerance is given in krad(Si)
Note 2: Latch-up LET Threshold is given in MeV·cm²/mg
Note 3: SEE LET Threshold is given in MeV·cm²/mg
Note 4: SET detailed reports can be requested