Polaris 200G/400G PAM4/NRZ Retimer and Gearbox

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Polaris</th>
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<tbody>
<tr>
<td><strong>Product Type</strong></td>
<td>Multiple variants to speeds up to 50Gbs PAM</td>
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<td><strong>Market Segments</strong></td>
<td>Inside Data Centers</td>
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| **Applications** | • Low power PAM-4 retimer with form factor suitable for QSFP56 200G modules  
                     • Implements PAM-4 Electrical outputs, and includes an integrated EML driver  
                     • Supports both 56.25Gb/s datastreams with PAM-4 modulation or 28.125Gb/s streams with NRZ modulation.  
                     • Lane-based diagnostic Link Monitor to analyze receive error statistics and estimate BER |
| **Features** | • 200G Variant: 4x25GBaud PAM4 Retimer  
                     • 400G Variant: 8x25GBaud PAM4 Retimer  
                     • Additional variants for 2-lane retimers and 50Gbs PAM4 gearbox  
                     • Host interfaces with full 3-tap Tx FIR with eye1/2 control  
                     • Line interfaces support 3-tap Tx FIR with eye1/2 control  
                     • Line Tx variants  
                        • 1Vp-p differential output  
                        • 1.9Vp-p single-ended, single or dual bias-T EML drive  
                     • Full DSP Line Receiver for maximum performance over complex optical links |

**Description**
The Marvell Polaris PAM4 DSP is a next generation solution for cloud data center, high-performance computing, and AI optical transceivers. Polaris supports multiple industry standard protocols up to 50Gbs for both single mode and multi-mode applications. It is equipped with an industry leading PAM4 digital core for optimal performance across a range of applications. Polaris includes several performance monitoring features including SNR, histogram, FFE-tap view for line side interface. Both host and side interface support shallow loopback and PRBS generation/checking for diagnostic operations.