MARKET FOR PAM4 AND COHERENT DSPS

1st Edition | February 2019
# TABLE OF CONTENTS

Table of Contents ...................................................................................................................... 1  
Abstract ....................................................................................................................................... 4  
Executive Summary ....................................................................................................................... 5  
Demand for 400G optics will boost sales of IC chipsets ................................................................. 5  
The battle between PAM4 and Coherent DSP Chipsets ................................................................. 6  
Chapter 1: The Global IC Market .................................................................................................. 8  
LightCounting IC Index .................................................................................................................. 8  
Communication IC Market ............................................................................................................ 10  
Communication IC Technologies .................................................................................................... 11  
Inphi .............................................................................................................................................. 12  
Macom ......................................................................................................................................... 13  
Maxim ......................................................................................................................................... 14  
Maxlinear .................................................................................................................................... 15  
Semtech ...................................................................................................................................... 16  
Chapter 2: PAM4 DSP and the market for ICs used in Ethernet optical transceivers .............. 18  
Evolution of 10GbE modules ........................................................................................................ 19  
40G and 100G Ethernet transceivers and IC chipsets ................................................................. 22  
Emerging opportunity for PAM4 DSPs in 200/400G Ethernet market ....................................... 27  
Chapter 3: Coherent DSP and the market for ICs used in DWDM optical interfaces ........... 31  
Evolution of 10G DWDM ............................................................................................................. 32  
100G DWDM optics and IC Chipsets ............................................................................................ 33  
Chapter 4: Forecast Methodology ............................................................................................... 38  
Deriving IC Chipsets from the LightCounting Transceiver Forecast ........................................ 38  
Data traffic growth in mega-datacenters ..................................................................................... 39  
Forecasting demand for Ethernet Optical Transceivers ............................................................ 43  
Forecasting DWDM and Other Market Segments ........................................................................ 45  
APPENDIX 1: Ethernet Roadmap ............................................................................................... 47  
The 2018 Ethernet Roadmap ......................................................................................................... 47
Multi-Source Agreements (MSAs) for Ethernet PMDs ................................................. 55
Appendix 2: Ethernet PMD Variants Described ......................................................... 58
25G Transceivers ........................................................................................................ 58
40G Transceivers ......................................................................................................... 58
50G Transceivers ......................................................................................................... 63
100G Multimode Transceivers .................................................................................. 64
Single-Mode Fiber 100G Transceivers ...................................................................... 66
200G Transceivers ....................................................................................................... 74
400G Transceivers ....................................................................................................... 76
400G Single-Mode Transceivers ................................................................................. 77
Abstract

This report analyses the market for semiconductor IC chipsets used in optical transceivers and related products. The chipsets include laser drivers, CDRs, TIAs and in some cases FEC, PAM4 and coherent DSP ICs. Demand for 400GbE connectivity inside mega datacenters and 400G DWDM optics on the outside boost demand for PAM4 and coherent DSP chips, making it a very attractive business opportunity for 2020-2023.

The report analyses the global market for IC chipsets by application, breaking the market down into CWDM/DWDM, Ethernet, Fibre Channel, FTTx and Wireless Fronthaul and AOCs/EOMs segments. It also includes a database with historical data for 2015-2018 and a 2019-2023 forecast for shipments, average selling prices and sales of IC chip sets sorted by type of transceivers or other modules where these are used. It also includes profiles of the leading suppliers of high-speed optical interface ICs.

LightCounting Market Research
858 West Park Street, Eugene, OR 97401
www.lightcounting.com • 408-962-4851

LightCounting is a market research company focused on the in-depth study of high speed interconnects for the datacom, telecom, and consumer communications markets. Our research covers the whole supply chain from optical and semiconductor components, to modules, sub-systems and their applications in telecom and datacom systems.

Our industry reputation was built by providing solid market data and objective analysis to help industry executives in making tactical and strategic business decisions and see past all the market hype, rumors, press reports, blogs and other distortions that so often complicate and confuse many decision making processes.

This LightCounting market report contains material that is a confidential, privileged, company product for the sole use of the intended recipients being LightCounting clients and subscribers. Any review, reliance on or redistribution by others or forwarding without LightCounting’s expressed permission is strictly prohibited.

For more information, go to: www.lightcounting.com
Or follow us on Twitter at: www.twitter.com/lightcounting