



**PALOMINO**  
LABORATORIES

---

# Palomino Laboratories, Inc.

*MicroLED-based Optical Interconnects for A.I. Data Communications*

**March 2026**  
**Corporate Overview**

*"Optical interconnect technology and package integration are critical for the continued scaling of AI factories, improving the energy efficiency and resiliency of large-scale AI networks." Nvidia (3/2/26)*



**PALOMINO**  
LABORATORIES

# Forward Looking Statements

Statements in this presentation that are not descriptions of historical facts are forward-looking statements that are based on management's current expectations and assumptions and are subject to risks and uncertainties. In some cases, you can identify forward-looking statements by terminology including "anticipates," "believes," "can," "continue," "could," "estimates," "expects," "intends," "may," "plans," "potential," "predicts," "should," "will," "would" or the negative of these terms or other comparable terminology. Factors that could cause actual results to differ materially from those currently anticipated include, without limitation;

- risks relating to the results of our research and development activities, including uncertainties relating to semiconductor process manufacturing;
- the early stage of our microLED technology presently under development;
- our need for substantial additional funds in order to continue our operations and the uncertainty of whether we will be able to obtain the funding we need;
- our ability to retain or hire key scientific, engineering or management personnel
- our ability to protect our intellectual property rights that are valuable to our business, including patent and other intellectual property rights;
- our dependence on third-party manufacturers, suppliers, research organizations, testing laboratories and other potential collaborators;
- our ability to successfully market and sell our technologies;
- the size and growth of the potential markets for any of our technologies, and the rate and degree of market acceptance of any of our technologies;
- competition in our industry; and
- regulatory developments in the U.S. and foreign countries.

In light of these risks, uncertainties and assumptions, the future events and circumstances discussed in the forward-looking statements may not occur, and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. You should not rely upon forward-looking statements as predictions of future events. The forward-looking statements included in this presentation speak only as of the date hereof, and, except as required by law, we undertake no obligation to update publicly or privately any forward-looking statements for any reason after the date of this presentation to conform these statements to actual results or to changes in our expectations.

**THESE MATERIALS DO NOT CONSTITUTE AN OFFER TO SELL, OR THE SOLICITATION OF ANY OFFER TO BUY, ANY SECURITIES OF PALOMINO LABORATORIES, INC., OR OF ANY OTHER ENTITY WHATSOEVER. ANY SUCH OFFER MAY ONLY BE MADE BY A DEFINITIVE SUBSCRIPTION AGREEMENT ISSUED BY THE COMPANY. ANY REPRESENTATION TO THE CONTRARY BY ANY PARTY SHOULD BE IGNORED.**

"Palomino™" and the Palomino logo are trademarks of Palomino Laboratories, Inc.



# The Team

**PALOMINO**  
LABORATORIES

## Co-Founders

### Chairman & CEO



**Jeff Shealy, M.B.A., Ph.D.**

- Visionary Entrepreneur in III-Nitride Semiconductor Technology
- Seasoned Pubco Executive with expertise in Private and Public Venture financing
- Co-founded 2 High Tech III-Nitride Companies (RF Nitro, Akoustis)

### Director



**Prof. Steven DenBaars**

- Solid State Lighting (SSL) Pioneer
- Developed LED lighting with enabling power efficiency for sustainable light source
- Co-founded 4 High Tech Companies (Nitres-Acq by CREE \$220M, Soraa, SLD Laser-Acq by Kyocera \$450M, Akoustis)

### Director



**Richard Ogawa, J.D.**

- Chief Legal Officer in Technology Companies in Private and Public Markets
- Proven track record representing over 200 companies from start-up to \$11B in market capitalization

## World Renown Leadership Team

### Colin Hunt



*VP Bus Dev*  
**SPACE X**  
**Semi**  
*A Marvell Company*  
**RFMD**

### Prof. Matt Wong



*MicroLED Pioneer*  
**UTD**  
**THE UNIVERSITY OF TEXAS AT DALLAS**

### Erica Honick



**TD Bank**  
**BANK OF AMERICA**

### Jason Tu CAO



**KPMG**  
**d-Matrix**  
**simbarovs**

### Keith Nellis



**d-Matrix**  
**MARVELL**  
**Inphi**  
*Think fast.*

### Prof. James Shealy



**CORNELL UNIVERSITY**  
**FOUNDED A.D. 1865**

### Maggie Nguyen



**IBM**  
**QS**

### Dr. Isik Kizilyalli



**ARPAE**



**PALOMINO**  
LABORATORIES

# MicroLEDs to Revolutionize Displays, Quantum and AI

Ultra-high brightness & efficiency for next-gen displays and lighting



<https://www.samsung.com>

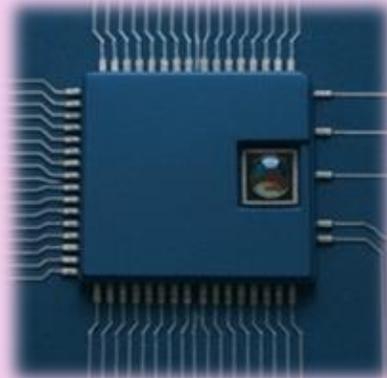
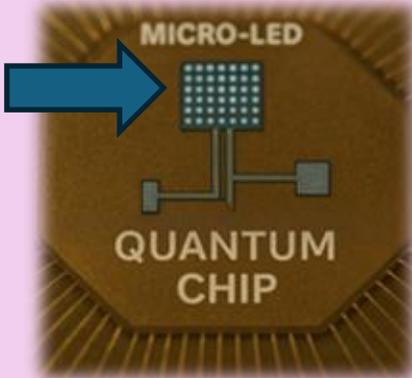


<https://www.hella.com>

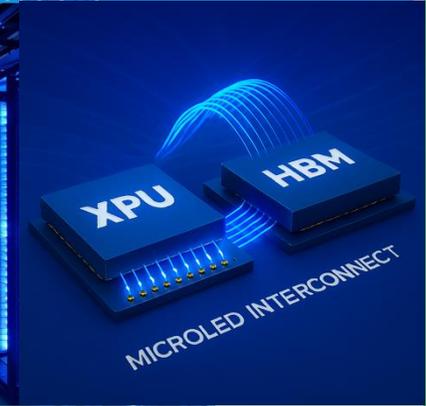
Enabling immersive AR/VR experiences and wearable innovations



Paving the way for integrated quantum devices (e.g., quantum random number generator)



MicroLED for optical interconnects and short-range A.I. data communications

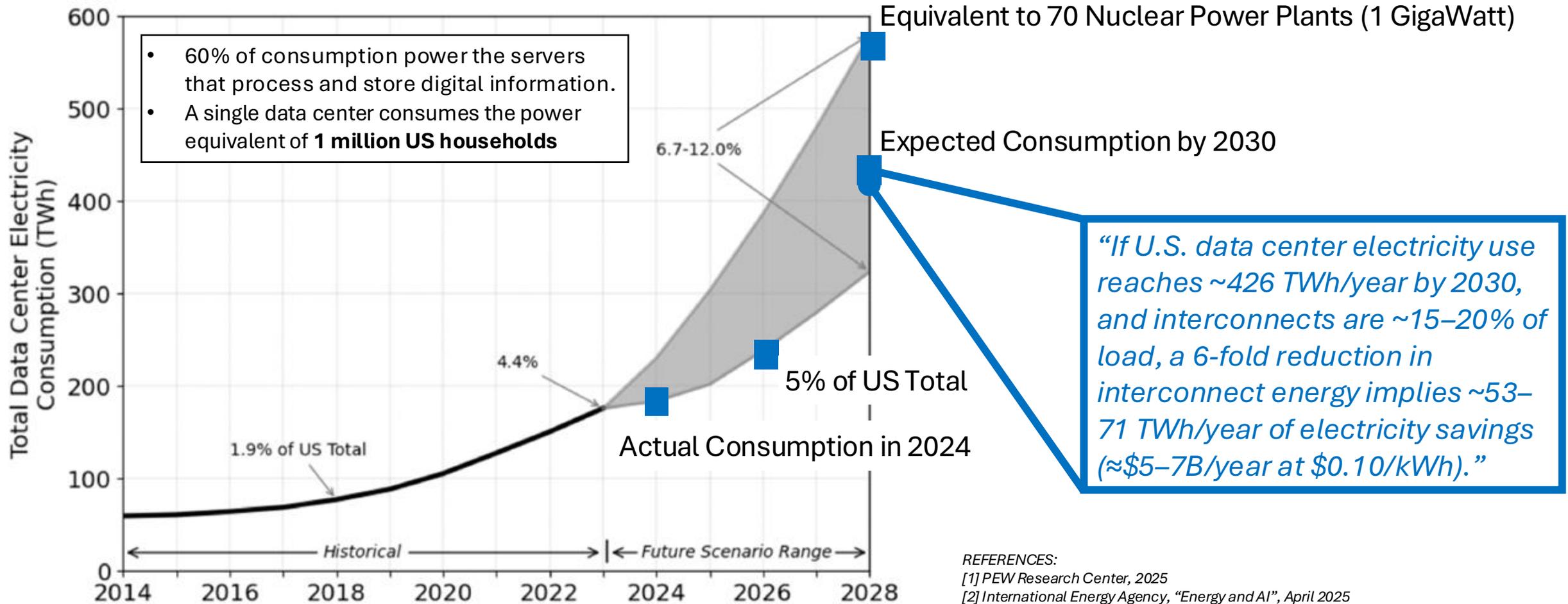


**PERFORMANCE DRIVEN/SCALE MARKET**



# Rising Energy Consumption in Data Center

PALOMINO  
LABORATORIES



#### REFERENCES:

- [1] PEW Research Center, 2025
- [2] International Energy Agency, “Energy and AI”, April 2025
- [3] Arman, S. (2024). 2024 United States Data Center Energy Usage Report. Lawrence Berkeley National Laboratory.
- [4] Hoyos Ensuncho, M. (2025). Data Centers Power Requirements. MOST Policy Initiative.
- [5] Tasoff, H. (2020, February 27). The World’s Data Plan. UC Santa Barbara News. US Energy Information Administration (2025)



# Opportunity to Disrupt AI Data Centers

**PALOMINO**  
LABORATORIES

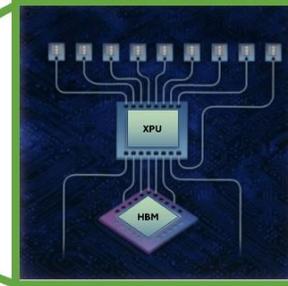
Meta AI Data Center  
(Montgomery, AL)



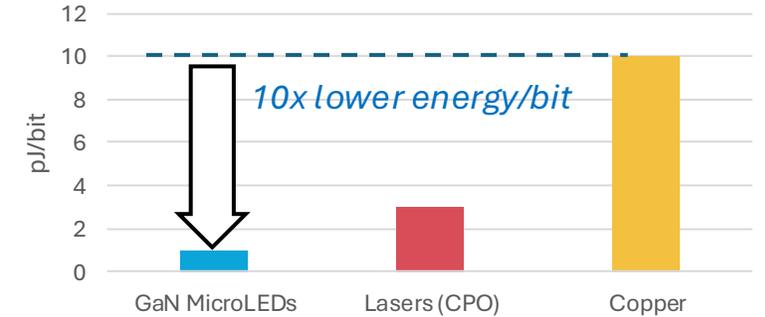
Rack-to-Rack Optical  
Interconnects (up to 30 meters)



Chip-to-Chip Optical  
Interconnects (~1 meter)



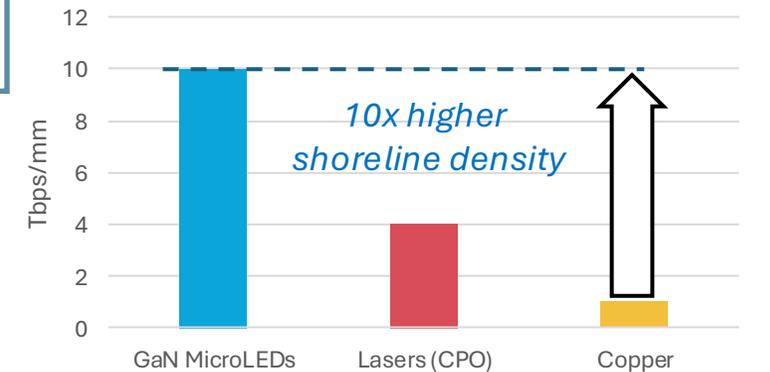
Energy per bit (pJ/bit)<sup>[1]</sup>



**MISSION: Replace Copper with MicroLED in data centers to reduce energy consumption related to interconnects by 6x, combined with 10x higher shoreline density, achieving superior SWaP-C.**

| Technology  | Energy/bit <sup>[1]</sup> | Shoreline | Cost/Engine <sup>[2]</sup> |
|-------------|---------------------------|-----------|----------------------------|
| Copper      | 8–12 pJ                   | Low       | \$50                       |
| Si-Ph Laser | 2–4 pJ                    | Medium    | \$800–1000                 |
| MicroLED    | <1 pJ                     | High      | \$100–300                  |

Bandwidth Density (Tbps/mm)<sup>[3]</sup>



[3] Ethernet Alliance – 17 Feb 2026  
Financial Content – 12 Jan 2026  
Internal Palomino estimate - Jan 2026

[1] Investor.wedbush.com – 12 Jan 2026  
Converge Digest – 25 Aug 2025  
[2] Internal Palomino estimate - Jan 2026

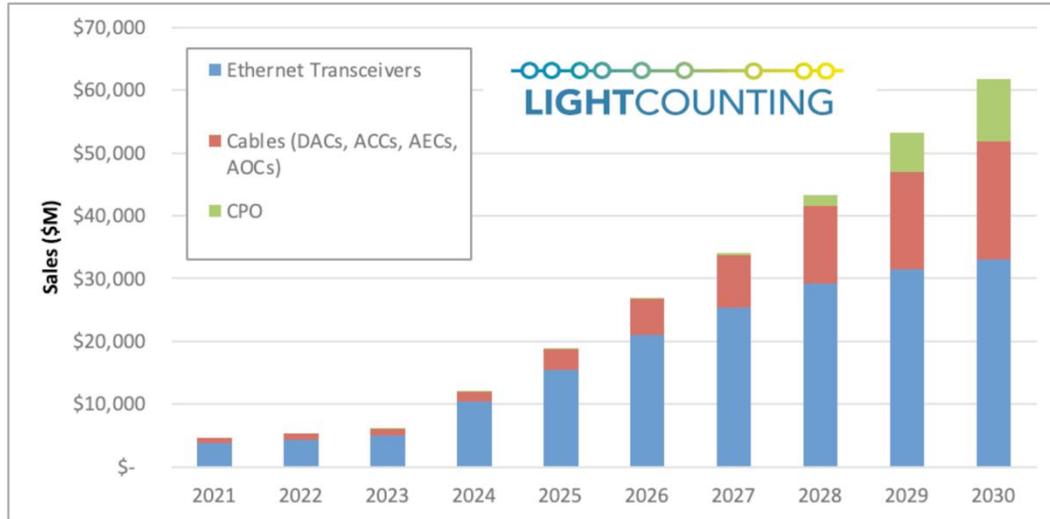


# Low-Power Optical Interconnects for AI Data Centers

PALOMINO  
LABORATORIES

## The latest market forecast

Sales of pluggable transceivers and cables exceeded forecast for 2025.



Source: December 2025 – AOCs, DACs, LPO and CPO report

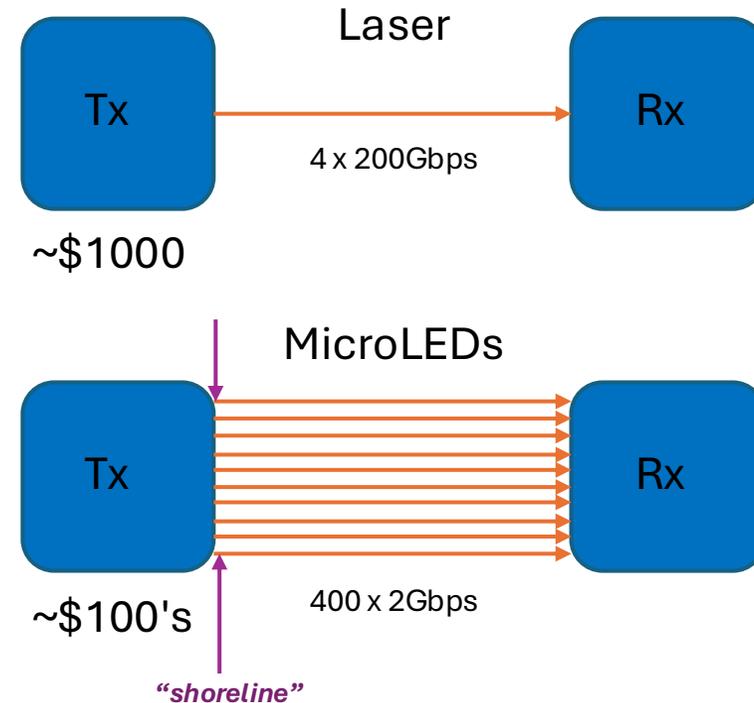
**Ultra-low energy:** < 1 pJ/bit

**High bandwidth:** Massive parallel data 10 Tbps per mm.

**High reliability:** Uses robust, mature technology that can support very high operating temperatures,

**Low Cost:** \$100's

**CMOS compatibility:** MicroLED arrays can be directly integrated onto silicon

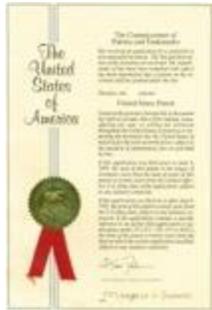


|  |
|--|
| <p>UCSB Demo: 1.2 Gbps per pixel<br/>Palomino Target: 2–5 Gbps per pixel</p> |
|--|



**PALOMINO**  
LABORATORIES

# Intellectual Property



Patents enabling  
high-fidelity optical  
communication without  
noise from natural light

8 Patents Filed or Issued

**UCSB**

UNIVERSITY OF CALIFORNIA  
SANTA BARBARA

Exclusive Patent  
License Agreement  
from University of  
California, Santa  
Barbara

Exclusive Option to License 15 Patents



Palomino Laboratories  
Inc. confidential trade  
secrets & patents

Numerous Nanomaterial and  
Device Manufacturing Processes



# Target Customers and Academic Partners

PALOMINO  
LABORATORIES

- **Target Customers:**



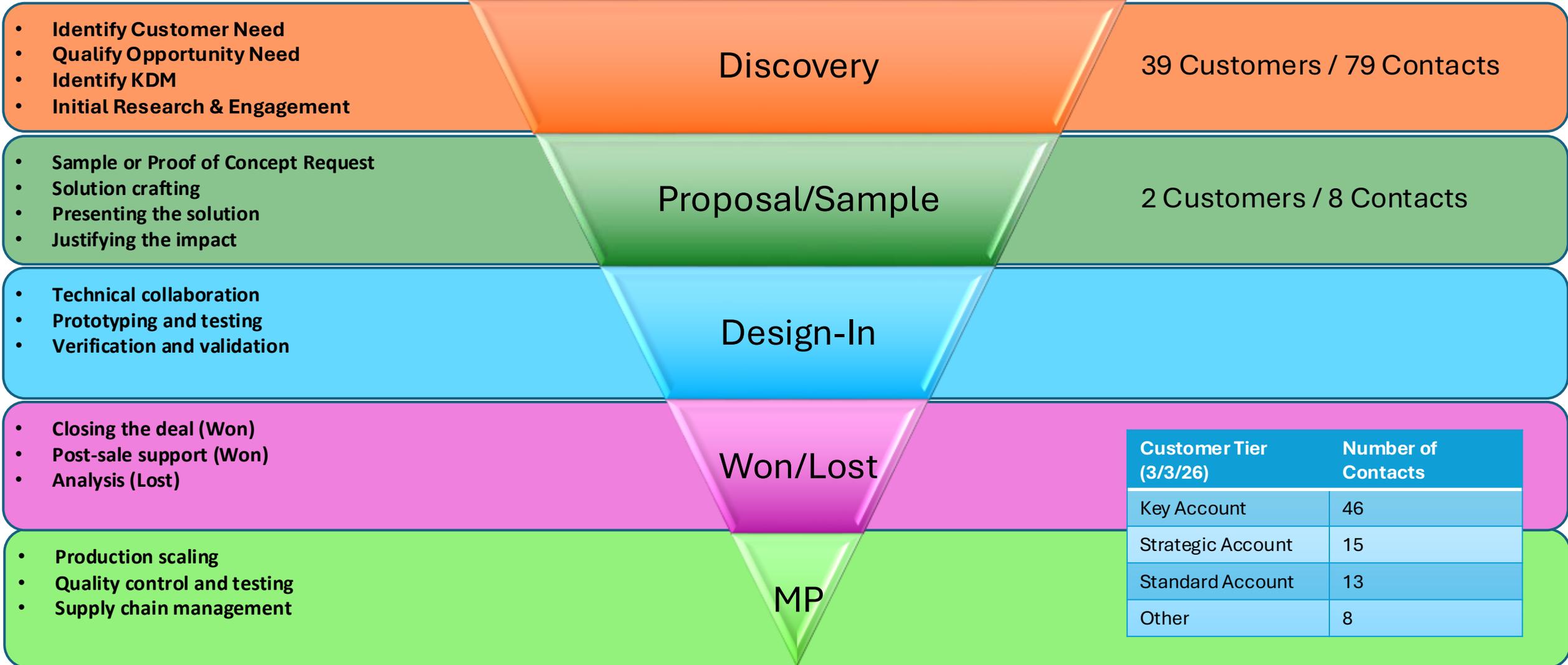
- **Academic Partners:** University of California GaN photonics leadership and UCF CREOL optical coupling





# Sales Funnel – Current Engagement Overview

**PALOMINO**  
LABORATORIES



- Identify Customer Need
- Qualify Opportunity Need
- Identify KDM
- Initial Research & Engagement

Discovery

39 Customers / 79 Contacts

- Sample or Proof of Concept Request
- Solution crafting
- Presenting the solution
- Justifying the impact

Proposal/Sample

2 Customers / 8 Contacts

- Technical collaboration
- Prototyping and testing
- Verification and validation

Design-In

- Closing the deal (Won)
- Post-sale support (Won)
- Analysis (Lost)

Won/Lost

- Production scaling
- Quality control and testing
- Supply chain management

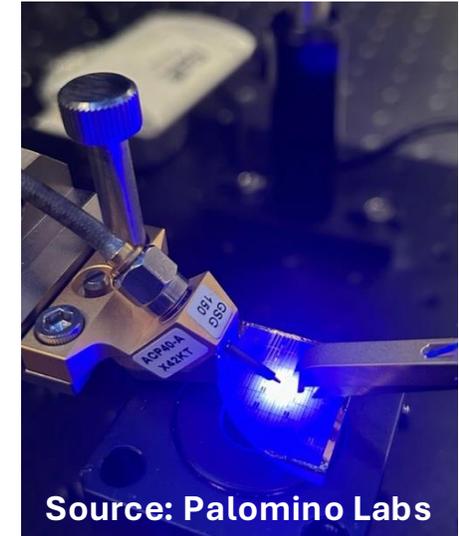
MP



# Palomino Technology Differentiation

***MicroLEDs unlock massively parallel optical engines optimized for short range (up to 30 meters) optical interconnects — where silicon photonics are cost- and power-inefficient.***

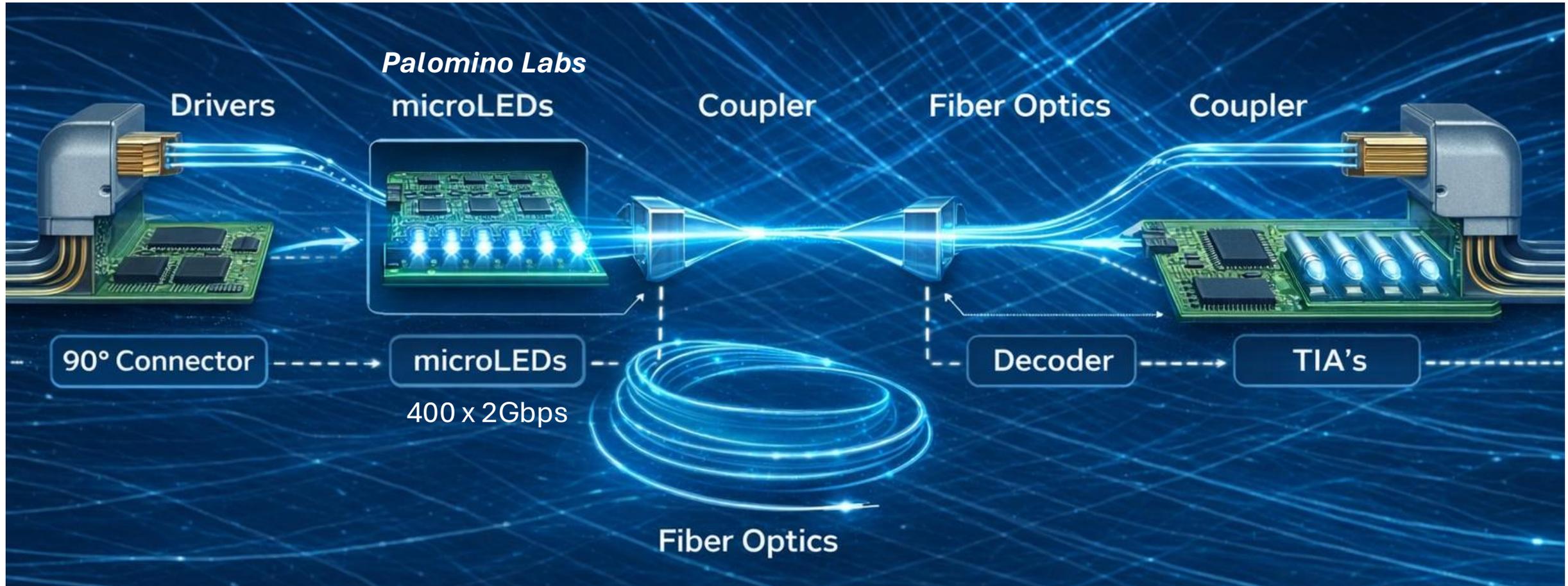
- **Unmatched Bandwidth Density**  
Targeting ~10 Tbps/mm — a step-change in data throughput for AI and next-generation compute.
- **Single-Micron MicroLEDs. No Performance Compromise.**  
High EQE. Ultra-fast modulation. Scaled to the physical limits of light.
- **2× Data Per Pixel**  
Patented WDM enables 2+ wavelengths per microLED — multiplying throughput without increasing footprint.
- **Built for Advanced Packaging**  
Chiplet-ready architecture with wafer-level alignment for seamless integration.
- **Mission-Critical Reliability**  
Designed to meet MIL-STD-810, GEVS, and HTOL qualification standards.





PALOMINO  
LABORATORIES

# 800Gbps MicroLED Optical Interconnect





# Go-To-Market Strategy & Timeline

---

**Phase 1:** Pilot line setup and qualification (0-12mths)

**Phase 2:** Sampling to Tier1 partners (6-24mths)

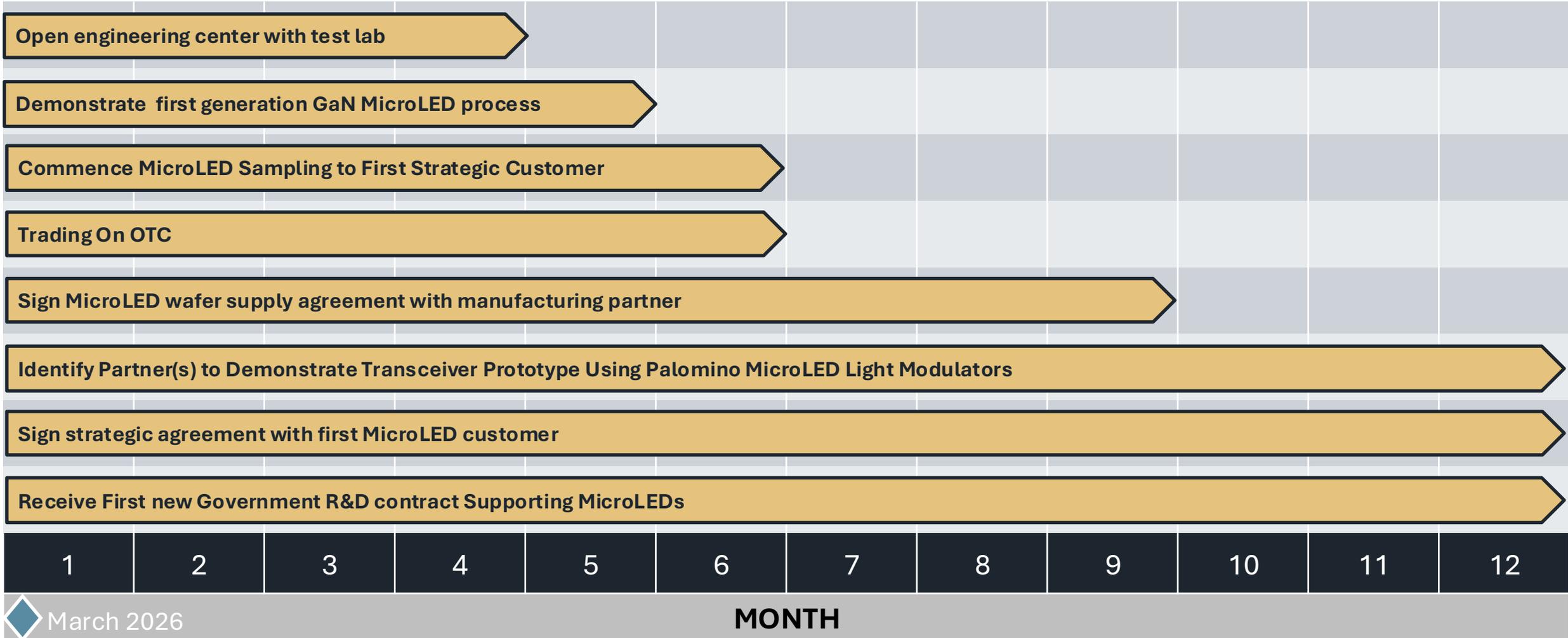
**Phase 3:** Commercial deployment in data center interconnects (24-36mths)

**Channels:** Direct engagements with hyperscalers, defense integrators and OEM's



**PALOMINO**  
LABORATORIES

# Investor Milestones: 0-12 months



◆ March 2026

**MONTH**



# Key Takeaways

- The Right Team with leading IP: Management team with multiple prior private/public exits and **60+ years experience in III-Nitride semiconductors (eg GaN)**; differentiated microLED/optical communications patent portfolio
- Attacking a **Large and growing high-performance optical transceiver market**—expected to reach **\$35B with CAGR 13-16%** by 2033
- **Leading a paradigm shift in short haul data transmission: Copper interconnects are becoming limited** by bandwidth, power inefficiencies; **Silicon Photonics using VCSEL lasers** are overkill for short haul data transfer in AI data centers where size, weight, power and cost (SWaP-C) are disruptive
- Our solution: Leverage UCSB's leading GaN MicroLED technology to build Integrated Optical Links enabling **reliable, 10x higher shoreline density and 6x lower power dissipation; UCSB GaN MicroLED technology leadership since 2012.**
- **Capital Formation Strategy: Achieve OTC listing 1H CY2026; and Uplist onto a national exchange within 12 months thereafter** (or upon qualified via \$40 Million Underwritten Offering)

THANK YOU!



**PALOMINO**  
LABORATORIES

# Contact Us

---

**Jeff Shealy**

Co-Founder, Chairman & CEO

[jeff@palominolabs.ai](mailto:jeff@palominolabs.ai)

