Distance Requirements for XLAUI/CAUI and PMD Service Interface

Gary Nicholl, Mark Warriner, Cisco

IEEE 802.3ba Task Force
Denver, CO. July 15-17, 2008

Introduction

- This presentation investigates the minimum distance requirements for both XLUAI/CAUI and PMD service electrical interfaces.
- The analysis considers the impact of both single and multi-port MAC/PHY devices, and also first generation (CFP based) and future generation optical modules.

Results

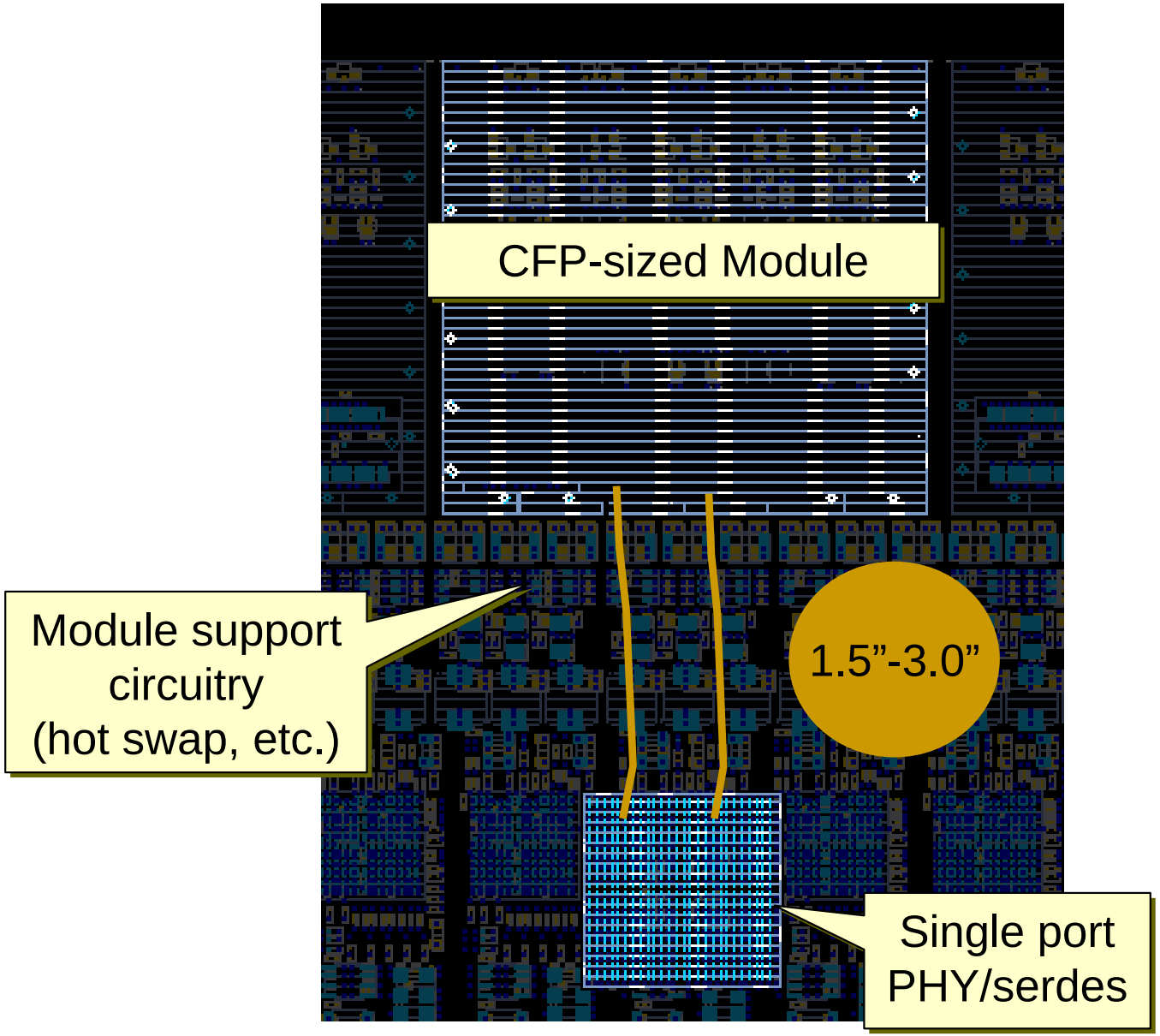
CFP sized optical modules (likely 1st gen)

- 1 port MAC/PHY chip: 1.5” - 3”
- 4 port MAC/PHY chip: 3” - 8”

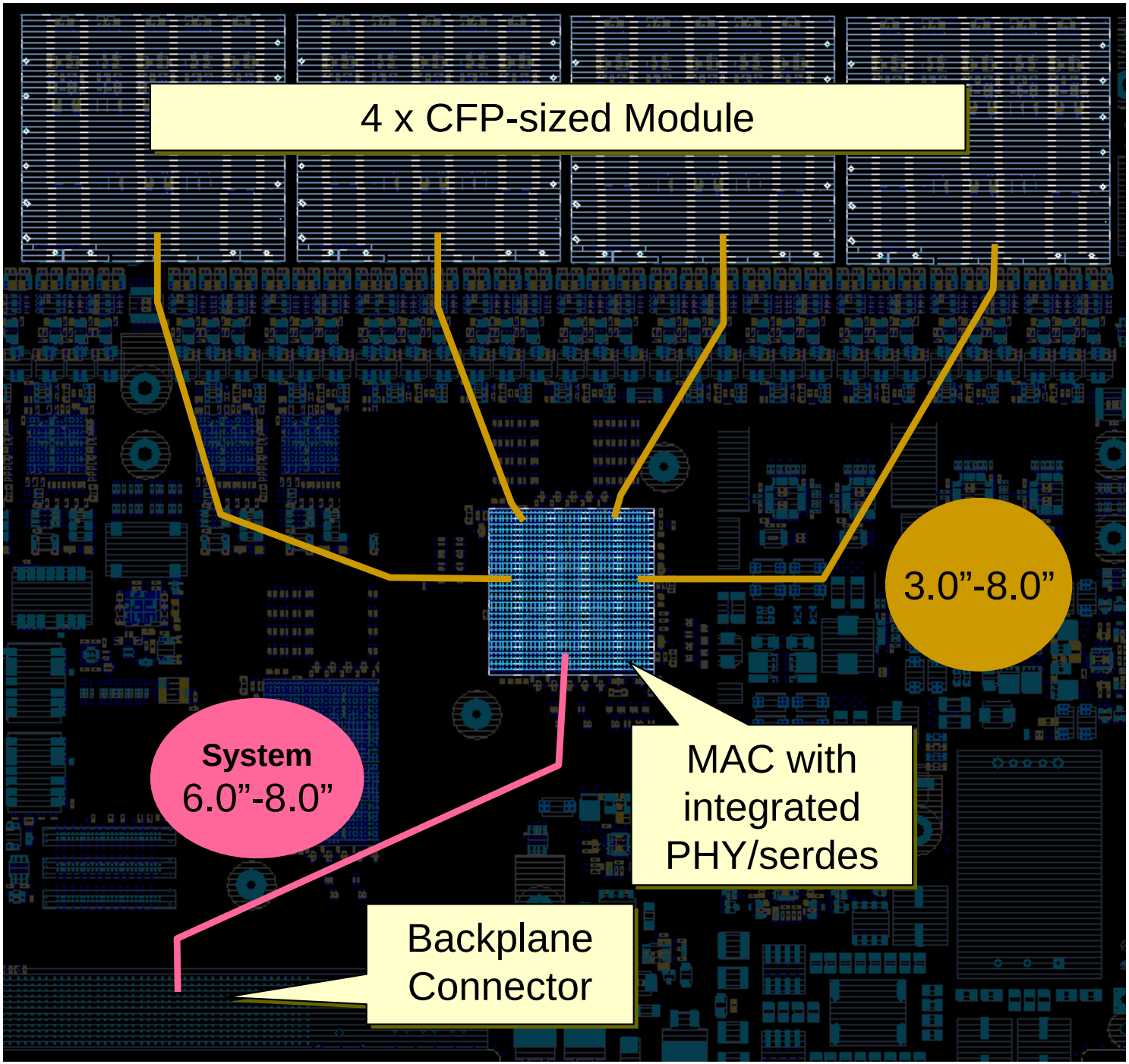
XFP/QSFP/POD sized optical modules

- 1 port MAC/PHY chip: 1.5”
- 4 port MAC/PHY chip: 2” - 4”
- 8 port MAC/PHY chip: 3” - 8”

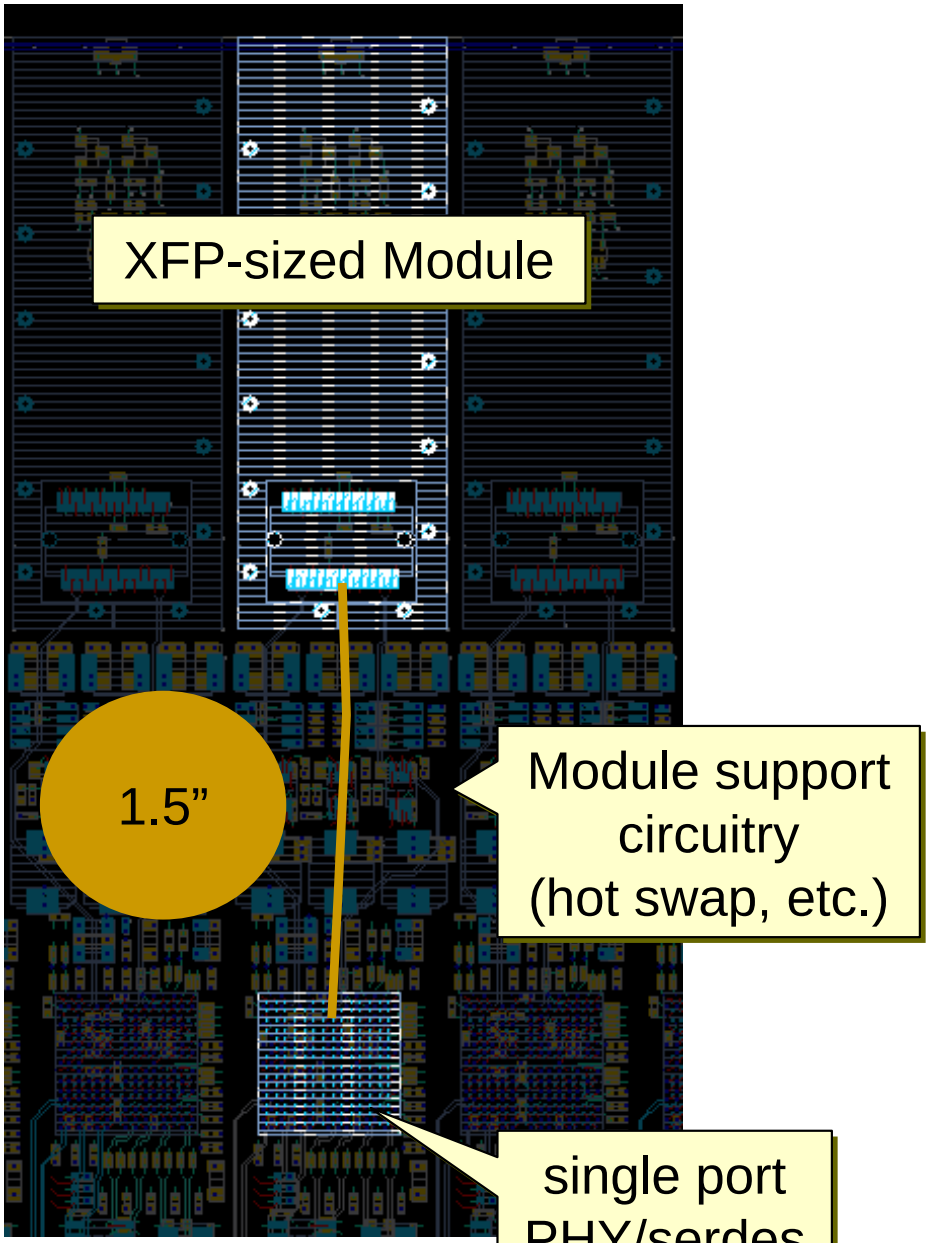
CFP: Single Port Host



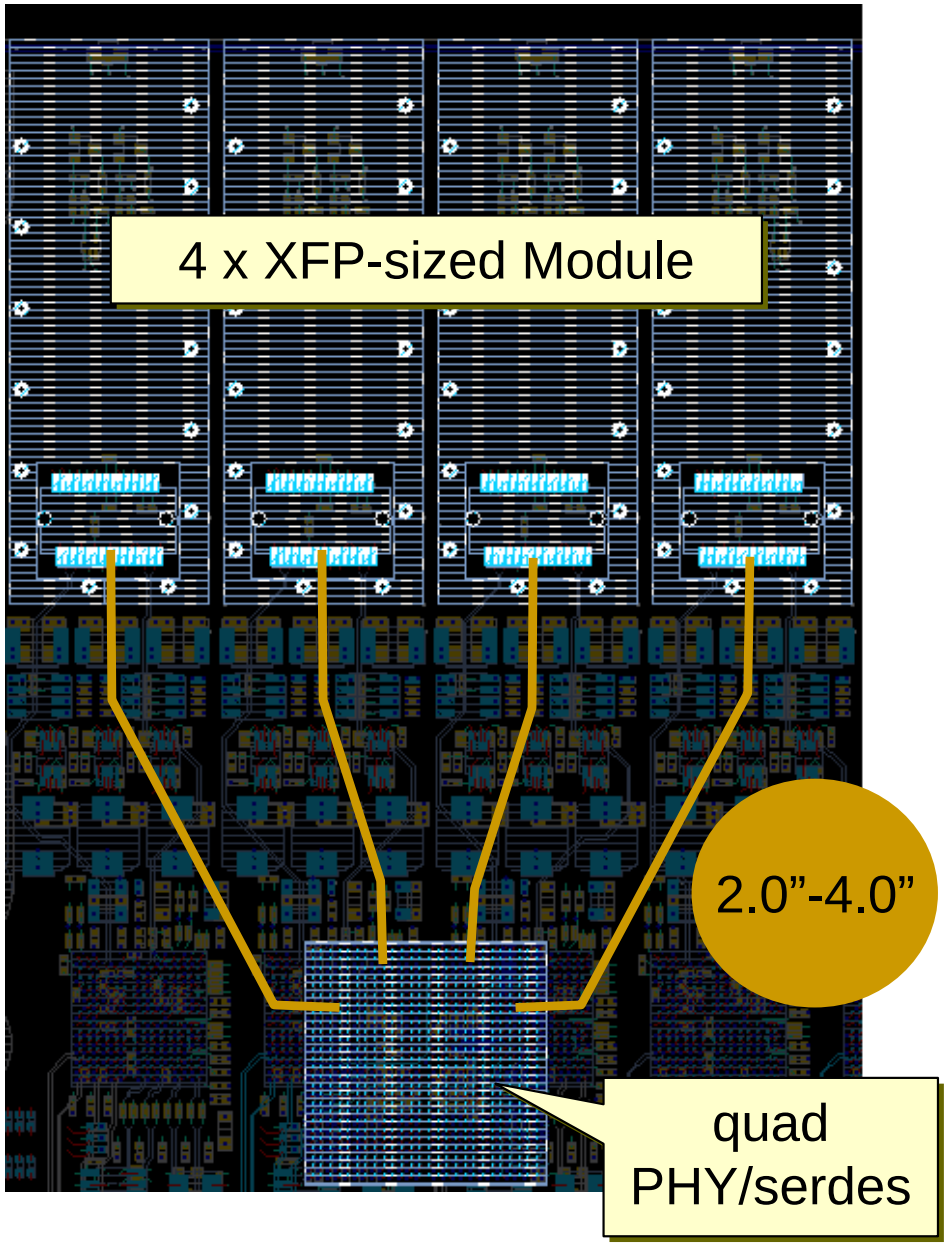
CFP: Four Port Host



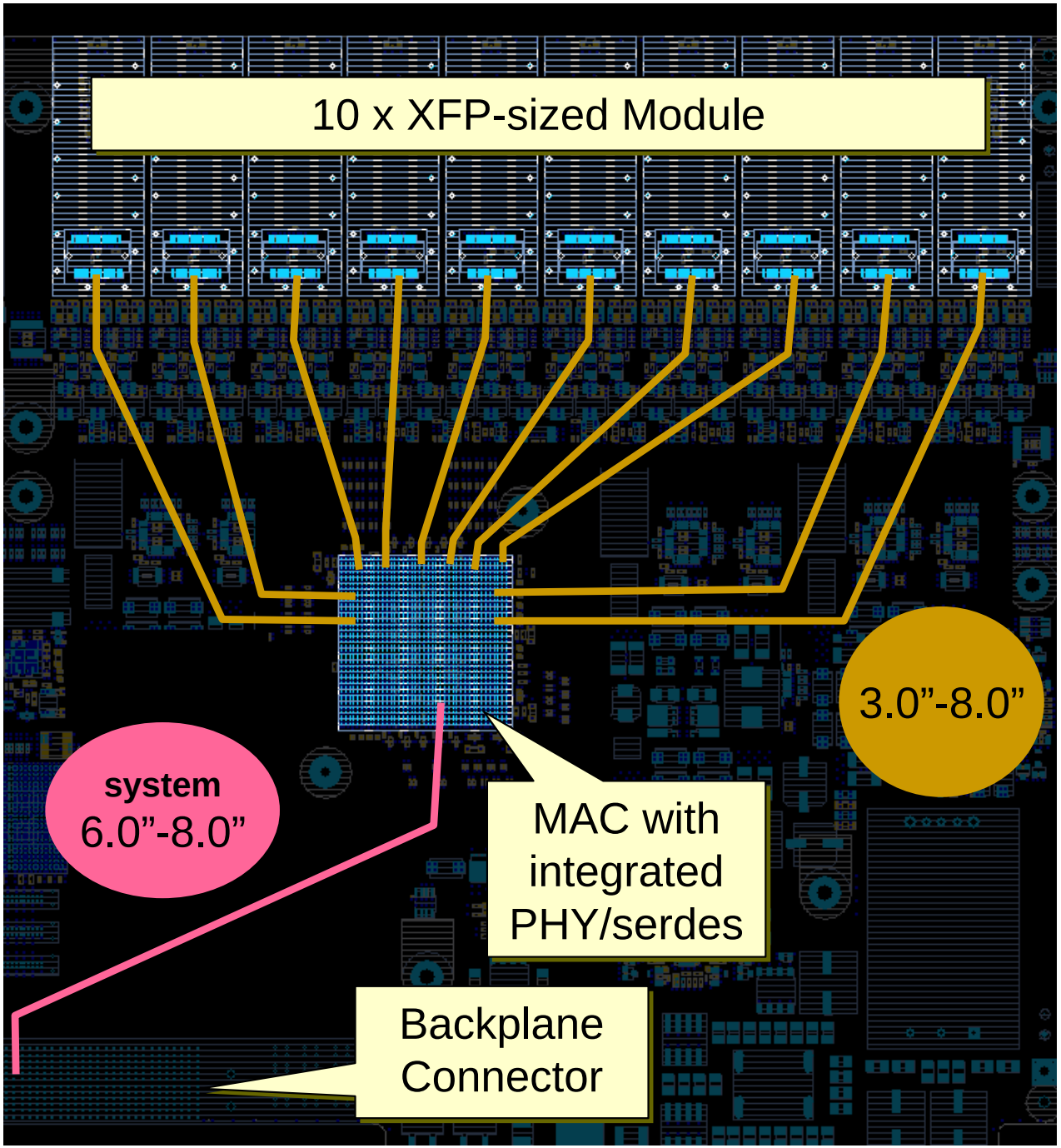
XFP: Single Port Host



XFP: Four Port Host



XFP: Eight/Ten Port Host



Recommendation

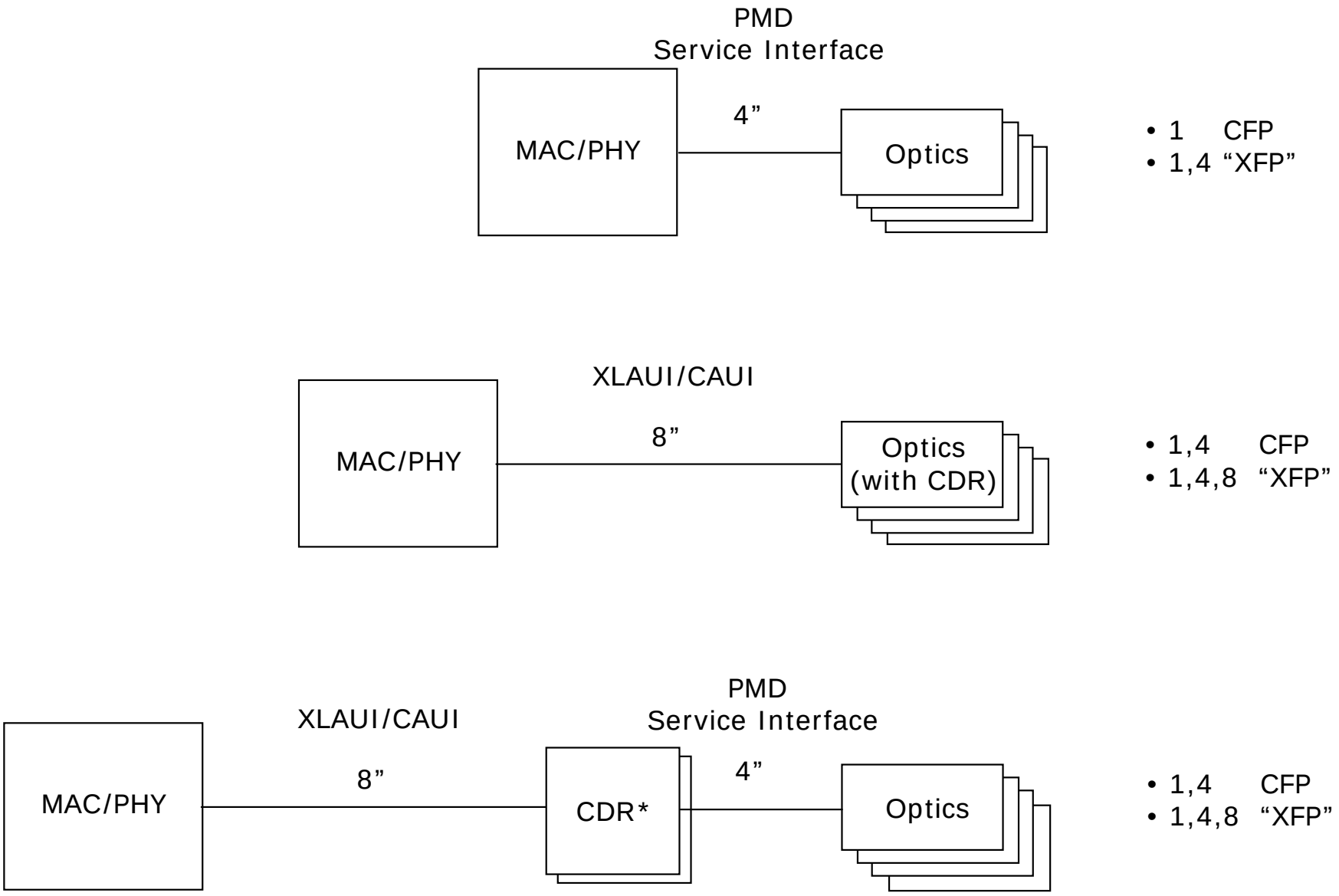
- Target PMD service interface at 4”

  This supports direct attach from a single host chip to either a single port CFP sized module, or to up to four XFP/QSFP sized modules.

- Target XLUAI/CAUI interface at 8”

  This supports direct attached from a single host chip to up to four CFP sized optical modules or up to eight/ten XFP/QSP sized optical modules.

Interfaces: Implementation options



* Note may require multiple CDR chips

Summary

- We analyzed the distance requirements for both the PMD service interface and XLAUI/CAUI assuming both CFP and XFP/QSFP sized optical modules

- We recommend targeting the PMD service interface at a distance of 4” and XLAUI/CAUI at a distance of 8”