

Optical InterLinks (OIL) has unique core technologies and processing capabilities for creating prototype optical and bio chip products. Numerous customer developments and/or prototype product construction are under way or under discussion covering diverse applications enabling OIL to capitalize on our core strengths. In addition, our unique technologies, facilities, and capabilities are ideally suited for performing service work for other companies to further capitalize on our strengths.

Review of OIL strengths, facilities, and attributes:**Core technologies**

- unique polymer optical waveguide technology amenable to array connectorization; self supporting or substrate based structures; preprocessing, connectorization and QC before substrate bonding; single and multimode; high density with 10 um spacing between MM guides; 2D stacking, near lossless MM guide crossovers leading to unique sensor designs; precision machining; materials supply and formulation advances through a dedicated university spin out with strong photochemistry and polymer processing capability.
- optical fiber ribbonization for up to 64 per ribbon extendable to 256, custom connectorization in MT style or custom style ferrules for conventional or non-conventional fiber numbers and fiber sizes.
- precision micromachining with workstation computer control for polymer and other material processing with sub micron precision
- film lamination, processing, and handling capability for novel structures for bio chip, polymer waveguide structures
- ribbon die design algorithm created by OIL allows for immediate generation of ribbonizing dies for custom fiber numbers and sizes

Facilities / Equipment/Expertise

- precision micromachining excimer laser based processing work station for cutting out circuits/devices, mirrors, capillaries, precise connectorization for OF and waveguide systems, embedding components into film matrix to align to polymer and or fiber waveguides
- pressure and thermal controlled lamination equipment for film handling, lamination, and processing
- film coating capability for generating required lengths of polymer films typically 6 to 100 microns thick as needed
- optical apparatus for optical losses over numerous wavelengths, computer selected and automated, far field near field evaluation, shearing interference microscope for guide index profiles, bulk index measurements, microtoming for film processing and edge prep, polishing equipment
- environmental chamber for temperature and humidity cycling
- SolidEdge three dimensional CAD capability
- computer programming skills for precision machine control, for experimental data gathering and processing, machine part designs, photomask generation etc.
- WEB page generation and upgrade modifications capability
- 400 square feet of class 100 (ISO 5) clean room space

- two uv exposure boxes with precision exposure time and temperature control if needed
- fiber spool creel to feed ribbonization with tensor control, ribbon die exposure, fiber manipulation equipment, and ink jet printer to identify ribbons and lead fiber per ribbon
- total current space is 13,000 Sq. ft. with approximately 4000 of that for offices, conference room, lunch/breakout areas, and the remainder for laboratory, processing, clean rooms, assembly and test, and small to medium scale manufacturing
- prototype facilities at OIL can be expanded for small to medium scale manufacturing for generating waveguides, product assembly, precision machining., optical material, device characterization and analysis, and fiber ribbon / shuffle generation etc.

Products --- summarized elsewhere and all fully connectorized as required

- waveguide based array circuits, functional devices like compact, splitters, star couplers, ribbon doublers and mixers, with or without in or out of plane mirrors, unique sensor heads, board edge connectivity for backplanes and interposer board circuits, daughter board to backplane waveguide right angle array interconnections with electronic footprint compatibility
- fiber based distribution products including custom ribbons, shuffles perfect and custom, cablized ribbons for short lengths
- unique film embedded capillaries with multilayer structures for access ports and capillary layers for bio applications with the potential for direct imaged waveguides in or above capillary layers to optically access capillary content all in a disposable bio chip

Location

- OIL's Kennett Square, PA facility is located 40 minutes from the Philadelphia, PA International airport, 1.3 hours from Baltimore and 1.5 hours from the BWI airport, 50 minutes from downtown center city Philadelphia.
- Extensive numbers of universities are locally available including U of DE, U of PA, Drexel, U of Maryland, several Penn State U campuses and others. Skilled technical personnel are available from Williams Tech School and Del Tech.

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BLBooth