

MPW Run Application Form

Please complete this form with your Company details and required Products and Services and send it to coordinator@jeppix.eu. This form is a non-binding document. Mention "MPW Run Application Form" in the subject of your email. Your request will be processed shortly. Thank you.

Customer Name *

Contact e-mail address *

Company Name *

Company VAT number *

Company Address *

Street Address

City

Postal / Zip Code

Country

Delivery Details ***

Recipient of goods

Contact phone number

Contact e-mail address

Delivery Address (if different from the Company address)

Company Address

Street Address

City

Postal / Zip Code

Country

Your design

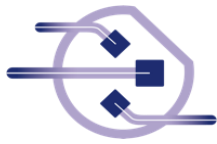
Please let us know about your design:

Design phase:	<input type="checkbox"/> educational	<input type="checkbox"/> research	<input type="checkbox"/> prototyping
	<input type="checkbox"/> interested in production scale-up	<input type="checkbox"/> other (please specify).....	
Product:	<input type="checkbox"/> lasers	<input type="checkbox"/> phase modulators	<input type="checkbox"/> modulators
	<input type="checkbox"/> detectors	<input type="checkbox"/> optical amplifiers	<input type="checkbox"/> polarisation devices
	<input type="checkbox"/> filters	<input type="checkbox"/> reflectors	<input type="checkbox"/> other (please specify).....
Application:	<input type="checkbox"/> Fiber optic sensors	<input type="checkbox"/> optical communications	
	<input type="checkbox"/> computation and signal processing	<input type="checkbox"/> free-space sensors	<input type="checkbox"/> spectroscopy
	<input type="checkbox"/> other (please specify).....		
Market:	<input type="checkbox"/> Information and communications	<input type="checkbox"/> Automotive & Aerospace	
	<input type="checkbox"/> Biomedical	<input type="checkbox"/> Agriculture & Food	<input type="checkbox"/> Industry 4.0
	<input type="checkbox"/> Smart cities & Smart Living	<input type="checkbox"/> other (please specify).....	

* Obligatory fields. Please note in case of your order the information must be complete and final since it is used for export control. Non-compliance with this requirement might cause delays and additional charges. Please check in advance your company eligibility to execute foreign trade transactions.

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MPW RUN: FOUNDRY SERVICE **



Fraunhofer Heinrich Hertz Institute

- Cell type **HHI-4-2-8** (2 x 8 mm²): 4 chips (copies) of your design with 2 x 8 mm² total design area, optical anti-reflection coating vs air on both facets **- 6900 EUR**
- Cell type **HHI-4-4-8** (4 x 8 mm²): 4 chips (copies) of your design with 4 x 8 mm² total design area, optical anti-reflection coating vs air on both facets **-13800 EUR**
- Cell type **HHI-4-6-8** (6 x 8 mm²): 4 chips (copies) of your design with 6 x 8 mm² total design area, optical anti-reflection coating vs air on both facets **-20700 EUR**
- Cell type **HHI-4-12-8** (12 x 8 mm²): 4 chips (copies) of your design with 12 x 8 mm² total design area, optical anti-reflection coating vs air on both facets **- 41400 EUR**
- Cell type **HHI-4-12-8-CUSTOM COATING-1** (12 x 8 mm²): 4 chips (copies) of your design with 12 x 8 mm² total design area, custom coating on either facet **- 43700 EUR**

Type of coating reflectivity (high/low)

Optical index outer medium ($1 \leq n \leq 2$)

- Cell type **HHI-4-12-8-CUSTOM COATING-2** (12 x 8 mm²): 4 chips (copies) of your design with 12 x 8 mm² total design area, custom coating on both facets

Type of coating reflectivity WEST (high/low)

Optical index outer medium WEST ($1 \leq n \leq 2$)

Type of coating reflectivity EAST (high/low)

Optical index outer medium EAST ($1 \leq n \leq 2$) **- 46000 EUR**

Run ID Quantity of ordered cells

- Cleaving. In case of additional cleave lines, please specify the number of chips after cleaving. This is mandatory for export control and shipping.

N chips Comments

Do you have a valid JePPIX User Agreement or NDA with the Foundry?

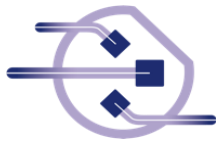
Specify the Ref.N. and its validity here

- Automated Design Rule Check for Fraunhofer HHI MPW by TU/e (free)

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LIGENTEC

LIGENTEC

- Cell types **MPW-AN800** (5 x 5 mm² or 5 x 10 mm²): 16 chip copies and the choice between 5 x 5 mm² or 5 x 10 mm² total design area - **16000 EUR**
- Cell types **MPW-AN350** (5 x 5 mm² or 5 x 10 mm²): 16 chip copies and the choice between 5 x 5 mm² or 5 x 10 mm² total design area - **14000 EUR**
- Cell types **MPW-AN150** (5 x 5 mm² or 5 x 10 mm²): 16 chip copies and the choice between 5 x 5 mm² or 5 x 10 mm² total design area - **12000 EUR**

Run ID Quantity of ordered cells



LioniX International

- Cell types **LX-I-16-16 LX-I-8-32** (16 x 16 mm² or 8 x 32 mm²): 4 cells with 16 x 16 mm² or 8 x 32 mm² total design area
 - for commercial organisations: - **16000 EUR**
 - for Universities (check the conditions [here](#)): - **8500 EUR**

Run ID Quantity of ordered cells



SMART Photonics

- Cell type **SMART XS** (2 x 4.6 mm²): 8 chips (copies) of your design with 2 x 4.6 mm² total design area - **6900 EUR**
- Cell type **SMART X** (4 x 4.6 mm²): 8 chips (copies) of your design with 4 x 4.6 mm² total design area - **11000 EUR**
- Cell type **SMART X2** (1-3 x 4.6 mm²): Standard cell size with 2 designs - 2x8 chips (copies) of your design with 1-3 x 4.6 mm² total design area - **12200 EUR**
- Cell type **SMART X3** (1-2 x 4.6 mm²): Standard cell size with 3 designs - 3x8 chips (copies) of your design with 1-2 x 4.6 mm² total design area - **14300 EUR**
- Cell type **SMART XL** (8 x 4.6 mm²): 8 chips (copies) of your design with 8 x 4.6 mm² total design area - **21400 EUR**
- Access to TU/e extension PDK (free for non-commercial use, see section on licensing)
- Automated Design Rule Check for SMART MPW by TU/e (free)

Run ID Quantity of ordered cells

Comments

Do you have a valid NDA with the Foundry?

Specify the Ref.N. and its validity here



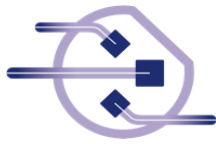
Eindhoven University of Technology

- Cell type **IMOS-MPW-64-TG** (6 x 4 mm²): at least 3 chips (copies) of your design with 6 x 4 mm² total design area - **20000 EUR**
- 50% collaboration discount is available when an agreed cooperation plan with TU/e is established. TU/e requires full disclosure of measurement data and full acknowledgement in the first peer-reviewed publication. Contact coordinator@jeppix.eu for details.
- Delivery terms (Incoterms 2020): DAP to your destination. Optional

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SOFTWARE: SIMULATION AND LAYOUT DESIGN TOOLS**



LUMERICAL

Ansys / Lumerical: Simulation

- INTERCONNECT.** A one-time only, 3 month Trial Licence of Ansys Lumerical INTERCONNECT - **0 EUR**



Luceda Photonics: Simulation and Layout design (one time offer)

- LUCEDA IPKISS** for Commercial Organisations:
3 months license is valid only for the first tape-out - **3000 EUR**
- LUCEDA IPKISS** for Research Centers and Institutes:
3 months license valid only for the first tape-out - **1400 EUR**
- LUCEDA IPKISS** for Universities:
1 year license is available under conditions of proper reference to IPKISS in the publications - **1400 EUR**



Nazca Design: Layout Design

- Nazca Design: Software is open source available for [download](#) free of charge
- PDK 3 months** subscription (sufficient for 1 MPW cycle) - **495 EUR**
- PDK 6 months** subscription - **765 EUR**
- PDK 12 months** subscription - **1395 EUR**
- Mask review** - **495 EUR**
- Layout support** - **1595 EUR**
- Mask review + Layout support + PDK** - **2095 EUR**

Please note that End User License Agreement (EULA) must be in place to access Nazca PDK subscription. EULA of the PDK Subscription are available [here](#).



Photon Design: Simulation

- PICWave - Design Kit Edition:** One-time intro offer. The bundle license validity is 3 months - **530 EUR**
- PICWave - Design Kit Edition Standard:** The license validity is 3 months - **1400 EUR**



Synopsys: Layout Design

- PDKs for the Synopsys Platform are available via JePPIX and the foundries.



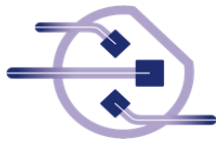
VPI Photonics: Simulation

- VPI-Je-CMP-1:** VPI Component Maker, One PDK - **830 EUR**
- VPI-Je-CMP-2:** VPI Component Maker, Two PDKs - **1100 EUR**
- VPI-Je-CMP-3:** VPI Component Maker, Three PDKs - **1350 EUR**
- VPI-Je-DD:** VPI Device Designer - **600 EUR**
- VPI bundle** (VPI-Je-CMP 3 PDKs + DD) - **1500 EUR**

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DESIGN SUPPORT by DESIGN HOUSES **



BRIGHT Photonics

- Custom design** is tailored to your application needs. Prices based on functional elements rather than cell size. Custom design starting at **11000 EUR**
- Prototypes:** Custom design + packaged device(s), pigtailed and wirebonded. Starting at **14000 EUR**
- Mask review** in Nazca - **495 EUR**
- Layout support** in Nazca - **1595 EUR**

For custom design contact: info@BrightPhotonics.eu



VLC Photonics

- Basic design support:** Design review, layout advice for test and packaging, DRC – **2000 EUR***
- Standard cell:** Layout for a single MPW cell using only available building blocks at the foundry PDK. This includes standard DC and optical routing – starting at **5500 EUR**
- Custom cell:** Specs definition, design and layout for a single MPW cell using both the available building blocks at the foundry PDK, and also new custom blocks that may be needed to implement the required circuit. This includes complex electrical (DC/RF) and optical routing. – starting at **11000 EUR**
- Request - 20% Academic discount (applied under the condition of acknowledgement of VLC Photonics in scientific publications).



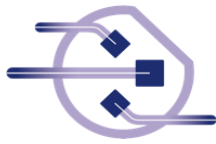
Epiphany

- Feasibility review:** Feasibility review for risk analysis and technical feasibility of envisioned functionalities by the customer. Review includes schematic or layout-based design for standard and custom BBs for JePPIX foundries. If applicable/needed, simulation of critical components (e.g. tolerance analysis) and cost-price analysis – **10000 EUR***
- Standard chip service:** Mask design and layout based on available building blocks and support customer engineers realizing their product ideas. Service goes from basic mask layout ready for production to optical circuit design. If needed, mask layout will be compatible with packaging and a protocol for testing will be developed. Price depends on complexity of the product idea. Mask file will be shared with the customer and IP of the mask design is owned by the customer – starting at **5000 EUR***
- Custom chip service:** Includes layout, simulation and documentation of custom building blocks. As new and untested building blocks are included in the circuit, the chance of unexpected effects is increased. Epiphany mitigates risk by thorough simulations and adding test structures of the custom building block. Different IP arrangements from customer exclusive to fully shared – starting at **5000 EUR***

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BUILDING BLOCKS by DESIGN HOUSES **



BRIGHT Photonics

- AWG BB** - Custom AWG Building Block on any JePPIX platform, starting at **-750 EUR**
 - MMI BB** - Custom MMI Building Block on any JePPIX platform, starting at **-450 EUR**
- For other custom building blocks and standard PDK extensions contact: info@BrightPhotonics.eu*

TESTING: CHARACTERIZATION **



VLC Photonics

- Characterisation.** VLC will characterize the fabricated photonic integrated circuit, by performing electrical and optical measurements of both building blocks and circuits, ideally supported by test structures. Characterization includes optical and electrical testing of building blocks and, when possible, circuit level measurements. A full characterization report will be provided afterwards in electronic pdf format. Prices depend on the number of dies to be measured, the number of structures per die, and the type of measurements for each structure
- starting at **2000 EUR**
- Pilot production planning.** Planification for Dedicated Fabrication Runs. Performing a technical study to evaluate the feasibility and define the project details towards the execution phases (design, fabrication, testing, packaging) together with a project management plan and techno-economical analysis to estimate the development cost and timelines, supply-chain, contingency strategies, risk analysis and administrative tasks. The goal is to outline a top-level scenario to clear the path towards product development.
- starting at **15000 EUR**
- Automated testing.** PIC testing can be done at wafer level or when the chip is already diced or cleaved. Testing optical, electrical DC and RF parameters is done by very carefully aligning probes with nanometer precision. Automated characterization process can be provided depending on the customer project requirements. Fully-calibrated equipments for high-quality optical RX and TX testing. Operation with 1310nm and 1550nm Sources, and VNA reaching frequencies up to 120GHz.
- starting at **25000 EUR**
- Testing assembly.** The Chip-on-Board (CoB) standard module is available in the form of:
 - ‘Electrical assembly’, to perform the electrical fan-out of the pads to the PCB. Suitable for optical coupling testing at the laboratories and testing facilities.
 - ‘Optical assembly’, based on Fibre-to-PIC bonding approach using Fibre-Arrays. Appropriate for fully optical designs with no electrical operation.
 - ‘Electro-Optical assembly’, which combines the two previous assemblies.
- starting at **10000 EUR**

PhotonFirst

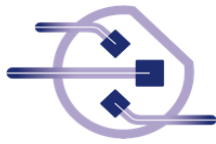


- Price on request. [Contact us.](#)

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PACKAGING**



BRIGHT Photonics

- Prototypes:** Custom design + packaged device(s), pigtailed and wirebonded.
Starting at **14000 EUR**



Fraunhofer Heinrich Hertz Institute

- PICconnect Mainboard**
8 current and 8 voltage sources, 4 laser drivers and 1 temperature controller with GUI plus 12V/4.5A power supply and 5 m Ethernet cable - **9500 EUR**
- PICconnect PIC Assembly, Single-sided**
Temperature controllable PIC Assembly of one chip with one PIC Board (50 bond pads on PIC's south side accessible) plus one ZIF cable, one ribbon cable and one adapter board - **5000 EUR**
- PICconnect PIC Assembly, Double-sided**
Temperature controllable PIC Assembly of one chip with two PIC Boards (50 bond pads on PIC's north and south side accessible each) plus two ZIF cables, two ribbon cables and two adapter boards - **6000 EUR**
- RFconnect fiber coupled RF PIC Assembly**
The thermally controllable assembly with 8 RF & optical ports and 42 DC ports facilitates the connection of RF measurement equipment - **10000 EUR**

PhotonFirst



- Non-standard packaging solution: price on request. [Contact us.](#)



PICadvanced

- Packaged PIC PA-MPW-JE-H0-xxx**
Packaged PIC with proprietary holder interface: SMF fiber interface; DC and RF interface; cooled with TEC. Following PICadvanced packaging design rules - **6000 EUR**
- Packaged PIC in PCB DC PA-MPW-JE-H1-xxx**
Packaged PIC with proprietary holder interface: SMF fiber interface; DC and RF interface; cooled with TEC. Packaged in a control board with graphical user interface, for DC test and monitoring, up to 20 current sources (max 100mA) or voltage sources (max 5V). Following PICadvanced packaging design rules - **8000 EUR**
- Packaged PIC in PCB RF PA-MPW-JE-H2-xxx**
Packaged PIC with proprietary holder interface: SMF fiber interface; DC and RF interface; cooled with TEC. Packaged in a control board with graphical user interface, for DC test and monitoring, up to 20 current sources (max 100mA) or voltage sources (max 5V) and up to 4 RF-SMA connectors without RF driving electronics included. Following PICadvanced packaging design rules - **10000 EUR**
- Packaged PIC in PCB DC and RF, CUSTOM PA-MPW-JE-H3-xxx**
Packaged PIC with proprietary holder interface: SMF fiber interface; DC and RF interface; cooled with TEC.
Packaged in a control board with DC and RF driving following the user requirements.
Following PICadvanced packaging design rules - **10000 EUR**
- 50% discount to academic users can be applied via a collaboration protocol

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