

# FPA-1200NZ2C Nanoimprint Lithography Systems for Fine Patterning Applications

**NEW**



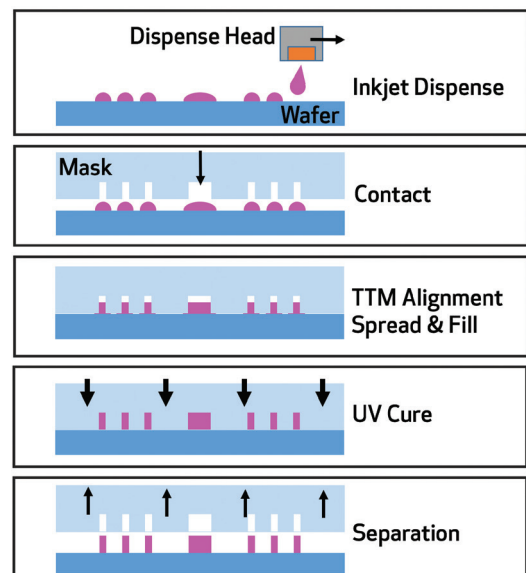
## High-Resolution Nanoimprint Lithography Equipment

Canon's Nanoimprint Lithography (NIL) technology enables fine patterning and has demonstrated 14 nanometer (nm) linewidth resolution. Canon's FPA-1200NZ2C NIL systems are expected to enable circuit patterning with a minimum linewidth of 10 nm, which corresponds to 2-nm semiconductor process node.

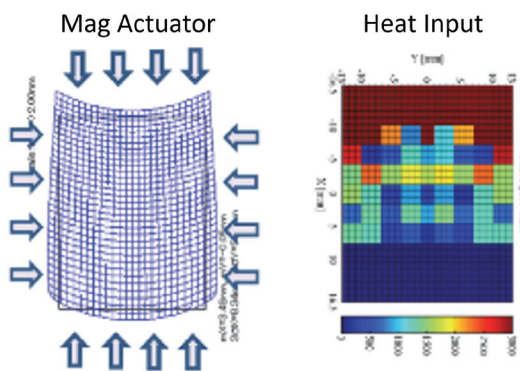
Nanoimprint patterns are formed by pressing a mask etched with the circuit pattern into photosensitive material on a wafer like a stamp. Because the NIL circuit pattern transfer process does not go through an optical mechanism, fine circuit patterns on the mask can be faithfully reproduced on the wafer.

## FPA-1200NZ2C FEATURES

- Canon NIL equipment can be used for a wide range of applications including logic, memory and metalenses for AR/VR displays
- NIL process can simplify existing multi-patterning processes and reduce Cost of Ownership (CoO)
- NIL resolution is primarily determined by the mask process
  - 14 nm Line/Space and 16 nm contact hole patterning has been demonstrated
- NIL enables greater design freedom allowing complex 2- or 3-dimensional circuit patterns to be formed in a single imprint
- NIL processes offer low Linewidth Roughness (LWR). NIL LWR is related to mask etch



Canon Jet & Flash Imprint Lithography (J-FIL) Nanoimprint Process



NIL process equipment uses an array of Piezo actuators to apply mag correction and localized intra-field heat input to improve overlay matching accuracy

## SPECIFICATIONS

Technology	Nanoimprint Stepper
Resolution	≤ 15 nm (mask dependent)
Throughput	≥ 80 wph (4-station system)
Single Machine Overlay	≤ 4 nm
Mask Size	6"
Reduction Ratio	1:1
Field Size	26 x 33 mm
Substrate Size Options*	300 mm
Dimensions (W x D x H)	2.7 x 6.6 x 2.83 m (2-station)

# Canon Lithography Systems

Canon Photolithography equipment is designed to help provide exceptional quality, performance, and cost of ownership for your wafer imaging applications.

Canon FPA (Fine Pattern Aligner) Series Nanoimprint, i-line and Deep Ultraviolet (DUV) lithography systems are used in the fabrication and heterogeneous integration of high-tech devices including integrated circuits, hard disk read/write heads, microelectromechanical systems (MEMS) devices, image sensors, displays, power devices and light emitting diodes (LED).

## LITHOGRAPHY PRODUCTS & TARGET APPLICATIONS

Lithography Products	Technology	Resolution	Lens Red. Field Size [mm]	Substrate Options [mm]	MRAM	Logic & MPU/GPU	Medical	HDD & SCM	Power & Automotive	Waveguide & RF	Advanced Packaging	Optics & Photonics	MEMS, Sensors & IoT	PC & Mobile	5G & Data Centers	Wearables	AR/VR & Display	LED, MicroLED	Artificial Intelligence
FPA-1200NZ2C	Nanoimprint Lithography	≤15 nm	1:1 26 x 33	300	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FPA-8000iW	i-line (365 nm) Stepper	≤ 0.8 μm	2:1 55 x 55	510 x 515			✓				✓	✓	✓	✓	✓	✓	✓	✓	✓
FPA-3030i6	i-line (365 nm) Stepper	≤ 350 nm	5:1 22 x 22	≤ 200			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
FPA-3030iWa	i-line (365 nm) Stepper	≤ 0.8 μm	2:1 52 x 52	≤ 200			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FPA-3030EX6	KrF (248 nm) Stepper	≤ 150 nm	5:1 22 x 22	≤ 200			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
FPA-5520iV LF2	i-line (365 nm) Stepper	≤ 0.8 μm	2:1 54 x 68	300	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FPA-5550iZ2	i-line (365 nm) Stepper	≤ 350 nm ≤ 280 nm (2/3 Ann.)	4:1 26 x 33	200 300	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FPA-5510iX	i-line (365 nm) Stepper	≤ 0.5 μm	2:1 50 x 50	300			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FPA-6300ES6a	KrF (248 nm) Scanner	≤ 100 nm ≤ 90 nm (2/3 Ann.)	4:1 26 x 33	200 300	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
FPA-6300ESW	KrF (248 nm) Scanner	≤ 130 nm	3.125:1 33 x 42.2	200 300			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
MS-001	Overlay Metrology	---	---	300	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ Compatible with application

All options may not be available on all models. Contact Canon for details.



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