MYCRONIC

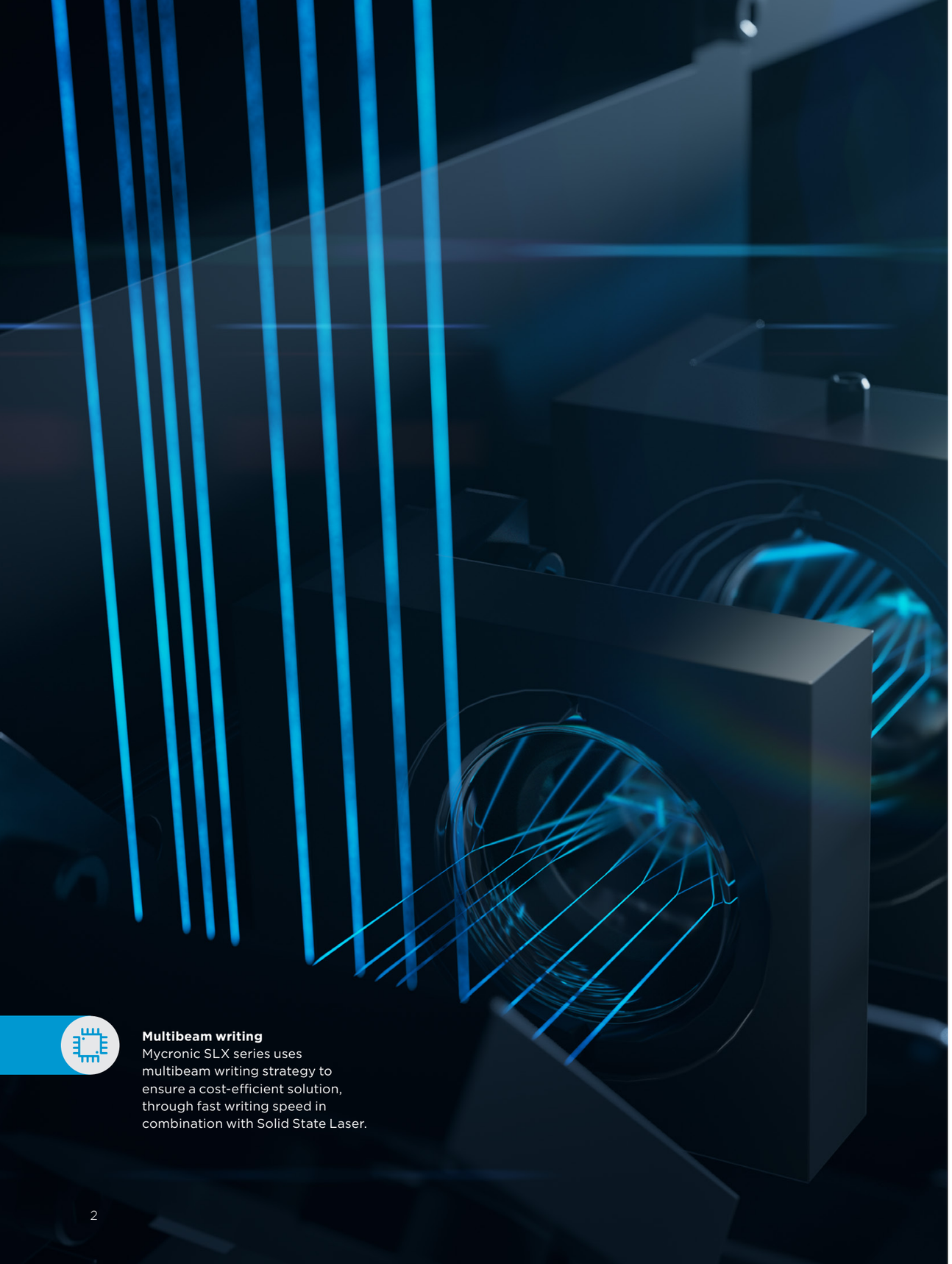
Built for a smarter **digital future**

The new SLX™ series





Meet today's fast-paced semiconductor industry



Multibeam writing
Mycronic SLX series uses multibeam writing strategy to ensure a cost-efficient solution, through fast writing speed in combination with Solid State Laser.

Mycronic SLX series
Gear up to meet today's fast-paced semiconductor industry

Born out of the rising demand of everyday electronics and devices, the SLX laser mask writer is designed to meet the trend towards making everything smarter: consumer goods, cars, Internet of Things, medical devices, and even industrial manufacturing equipment.

By combing field-proven technology, modern datapath management and state-of-the-art optics, the SLX operates faster, more reliably and at a lower cost of ownership – all throughout its lifecycle. Out of the over 600,000 photomasks produced in the semiconductor industry each year, 70-75% of these are written using laser-based mask writers. Most systems have been in service for some 15-25 years, making production slow and costly, with machines difficult to maintain. In short – these are rapidly approaching their replacement cycle.

WHAT YOU'LL GET WITH THE SLX SERIES

- Low cost of ownership with a wide range of configuration choice
- Stable and fast data preparation to support ever increasing data sizes
- A reliable system and access to good support
- New modern extendable architecture to enable future needs and functions

THE BEST CHOICE FOR COST-EFFICIENT PRODUCTION

Due to speed and lower dollar-to-mask costs, laser photo masks are preferred whenever they can meet the technical requirements. By applying writing principles proven from Mycronics' display systems, the SLX series provides unrivaled writing speed compared to existing systems in the field, where our fastest SLX model can expose 6" photomask within just minutes.

SLX is also equipped with Solid State Laser, cutting the power consumption with over 90% compared to the majority of lasers used in the market today.

WIDE RANGE OF CONFIGURATION OFFERING

Different customers have different technical requirements depending on applications and production mix. The SLX series offers three different base models which can be further customized, adding a wide range of options.

- **SLX 1:** the high-throughput i-line model delivers utmost productivity for lower-end semiconductor nodes
- **SLX 2:** a well-balanced i-line model for users who aim for both productivity and higher semiconductor nodes
- **SLX Lite 3:** a DUV model optimized for Phase Shift Mask application
- **SLX 3:** the most advanced DUV model, addressable up to around 90 nm node

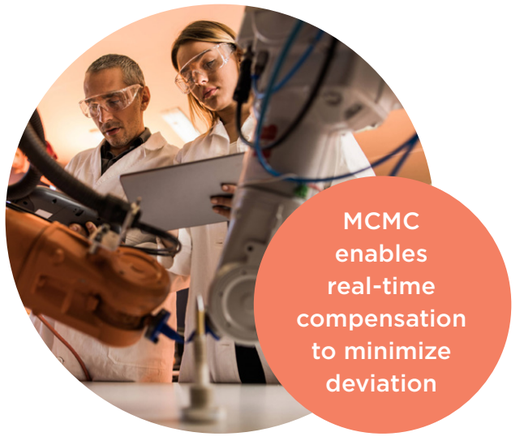
MODERN DATAPATH MANAGEMENT

One of the critical areas the mature semiconductor market is to have fast, stable and reliable pattern data management design, since the pattern density continues to increase at the same time it requires more compensation. The SLX series modern scalable datapath architecture handles all these aspects by having the same architecture as our state-of-the-art display mask writers that has been continuously developed over time. All critical processing is done offline, leaving only the data transfer step online to minimize the chance of errors during exposure.

SHARED PLATFORM AND POWERED BY MY INTELLIGENCE

SLX series are built on Evo control platform which is also used for other Mycronic's mask writers. All movement in the Evo control platform are controlled by a new servo board called MCMC (Multi Channel Motion Control) that enables real-time compensation to minimize deviation. The result is great stability and accuracy – something that's already been proven in the field.

The SLX series also comes with MY Intelligence SW, collecting and analyzing the log files from the system which enables user to get improved levels of quality control and trending SLX series status.



SLX e3: **the next generation of the SLX platform**

80 PERCENT INCREASE IN WRITING CAPACITY

Building on the proven success of previous SLX generations, the SLX e3 series represents the next major step in laser mask writing. Combining next-generation 29-beam optics with improved registration performance and software-configurable capacity scaling, SLX e3 delivers 80 percent increase in writing capacity while providing greater flexibility to adapt to changing production requirements.

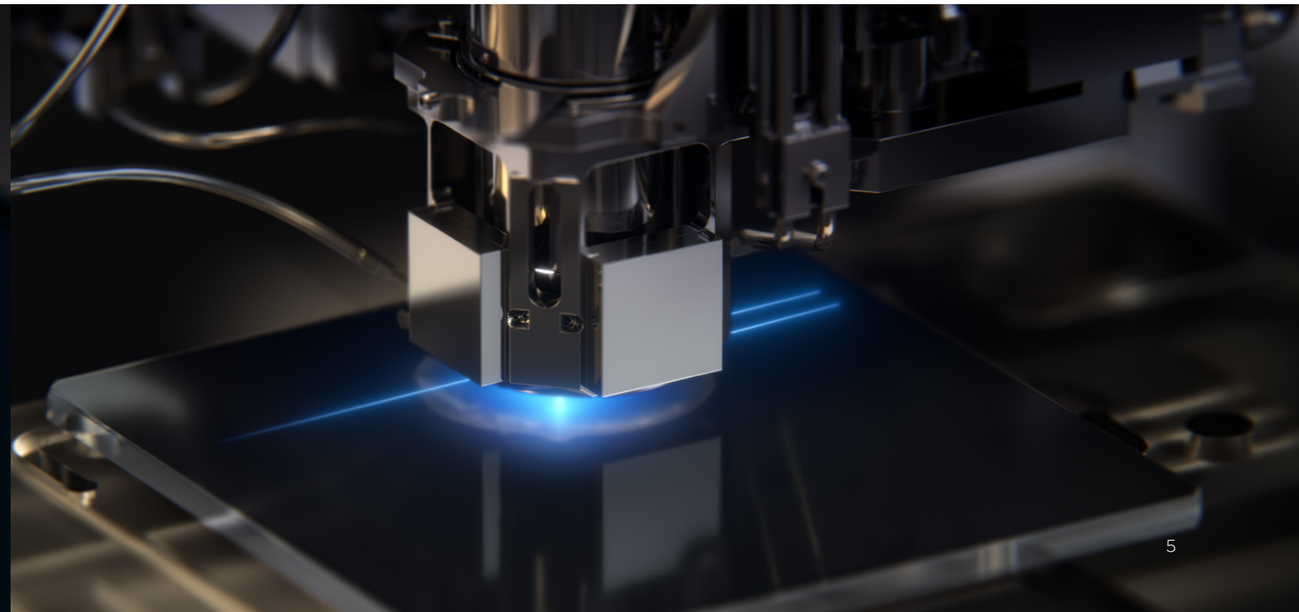
PRODUCTIVE AND FUTURE-READY PLATFORM

Designed for the next generation of mature semiconductor manufacturing, SLX e3 enables customers to balance throughput and accuracy according to their application needs. The result is a highly productive and future-ready platform that expands the range of addressable applications while maintaining the low cost per mask that makes laser writing the preferred choice for mainstream semiconductor production.



KEY HIGHLIGHTS

- Wide range of configuration options built on modern platform
- Unprecedented writing speed utilizing parallelized multibeam exposure
- Solid State Laser to cut down power consumption and environment-friendly
- Field proven offline datapath with write time independent of pattern complexity
- Access to skilled service from day one for stable and optimized operation
- Contamination free and reliable platform with unmatched uptime



Rewriting the standard of **high-volume production**

The SLX series continue to evolve, introducing SLX e2 series expanding addressable market to smaller semicon nodes without jeopardizing productivity through optimization of both HW and SW.



SLX 1 e3

KEY SPECIFICATIONS	2 PASS	1 PASS
Writing Time[1]	26 or 22 min[2]	13 or 11 min[2]
Minimum Line Width	650 nm	650 nm
CD Uniformity (3σ)	20 nm	25 nm
Registration (3σ)	20 nm	30 nm
2nd Layer Alignment (mean + 3σ)	50 nm	60 nm
Laser Wavelength	404 nm	

SLX 2 e3

KEY SPECIFICATIONS	4 PASS	2 PASS	1 PASS
Writing Time[1]	66 or 56 min[2]	33 or 28 min[2]	18 or 14 min[2]
Minimum Line Width	500 (400[3]) nm	500 (400[3]) nm	500 (400[3]) nm
CD Uniformity (3σ)	10 nm	14 nm	17 nm
Registration (3σ)	12 nm	15 nm	20 nm
2nd Layer Alignment (mean + 3σ)	30 nm	40 nm	45 nm
Laser Wavelength	404 nm		

SLX 3 LITE e3

KEY SPECIFICATIONS	4 PASS	2 PASS	1 PASS
Writing Time[1]	90 or 74 min[2]	45 or 37 min[2]	23 or 19 min[2]
Minimum Line Width	450 (350[3]) nm	450 (350[3]) nm	450 (350[3]) nm
CD Uniformity (3σ)	8 nm	14 nm	17 nm
Registration (3σ)	10 nm	15 nm	20 nm
2nd Layer Alignment (mean + 3σ)	25 (20[4]) nm	35 (30[4]) nm	45 (45[4]) nm
Laser Wavelength	266 nm		

SLX 3 e3

KEY SPECIFICATIONS	4 PASS	2 PASS	1 PASS
Writing Time[1]	122 or 100 min[2]	61 or 50 min[2]	31 or 25 min[2]
Minimum Line Width	350 (250[3]) nm	350 (250[3]) nm	350 (250[3]) nm
CD Uniformity (3σ)	6 nm	12 nm	15 nm
Registration (3σ)	10 nm	15 nm	20 nm
2nd Layer Alignment (mean + 3σ)	25 (20[4]) nm	35 (30[4]) nm	45 (45[4]) nm
Laser Wavelength	266 nm		

1. Based on maximum writing speed available. **2.** Estimated exposure time for 6" mask with area 150 x 150 mm and 133 x 133 mm. **3.** With LinearityPro option. **4.** With PSM Alignment Enhanced option.

Bringing tomorrow's electronics to life

MYCRONIC

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