

When Less Is More

How a Leading Semiconductor Manufacturer Reduced Equipment Maintenance Costs and Boosted UPH with Fewer Dispensing Platforms and Advanced Dual-Valve Jetting

Increasing Production

In 2019, the technical team at a leading semiconductor manufacturer reached out to their long-time fluid dispensing partner Nordson Electronics Solutions, to ramp up production capacity. Before the ramp-up, their install base included ASYMTEK Spectrum II platforms running dual DispenseJet® DJ-9500 jetting systems.

To achieve their 2019 ramp target, they decided to add and test the performance of six new Spectrum II platforms, each equipped with a single high-frequency ASYMTEK IntelliJet® Jetting System instead of the dual DispenseJets. The configuration change allowed them to increase UPH successfully. They were satisfied with the performance of the IntelliJet jetting system and considered that as they planned for their 2020 production ramp-up.

Should they purchase additional Spectrum II platforms running dual DispenseJets or add more Spectrum II platforms running a single IntelliJet Jetting system?

As it turned out, another option came into focus. An upgrade from Spectrum II to a new platform, the ASYMTEK Forte Series, further boosted UPH with dual high-frequency IntelliJet jetting and reduced equipment maintenance costs with fewer dispensing platforms.

Organizational Profile

What they do:

A manufacturer of computer memory and computer data storage including dynamic random-access memory, flash memory, and USB flash drives.

Who they help:

Automotive, 5G, consumer, Industrial IoT, mobile computing, client, network, and server applications.

Industry:

Semiconductors

Application:

Multi-pass 100 part per panel underfill dispensing application

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Before Upgrade: Application Details

- Spectrum II fluid dispensing system
- Dual DispenseJet DJ-9500 jets
- Multi-pass with 3 passes
- Wet-out area with three passes 0.8 mm
- Dot weight: 0.010 mg/dot
- Total dispense weight 1.1 mg
- Two fiducials per unit
- Calibrated Process Jetting +
- 24/7 production
- Underfill dispensing application: 100 units per panel



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Proposed Solution

A Nordson Business Development Manager worked closely with the manufacturer's technical and management teams to explore options. A successful solution would require significantly higher UPH results.

The Nordson Manager designed and presented an upgrade solution to the technical team and then shared a cost of ownership (COO) comparison with the management team comparing the Forte Series with Forte MAX dual-valve IntelliJet jetting and the Spectrum II with dual DispenseJet jetting.

The COO comparison confirmed that it would take fewer **Forte Series with Forte MAX platforms to do the same work as additional Spectrum II platforms with dual DispenseJets.**

Forte Series with Forte MAX Dual IntelliJet Jetting

New Technology

- Improved motor and stiffer mechanics to support added speed
- Strip mapping and SECS Gem capabilities

Higher Speed and UPH

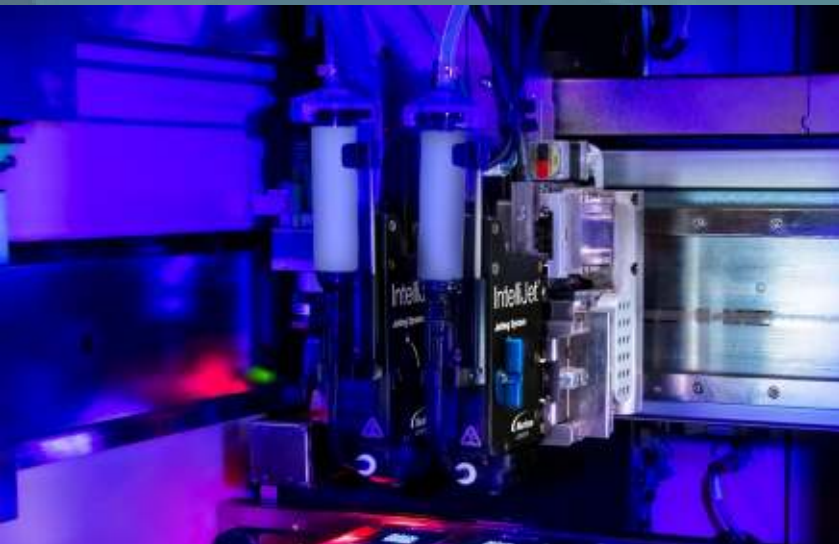
- A consistent UPH increase of 10-30% or more depending on the application

Canvas® Dispensing Software

- Completely new software
- Advanced features
- Intuitive graphical interface
- Customizable profiles

Support and Growth Opportunities

- Applications expertise
- Future software features
- Future capacity opportunities



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Steps to Success

Lab Demonstration and Onsite Evaluation

The Nordson applications team set up and evaluated the manufacturer's multi-pass 100 part per panel underfill application in a local Nordson lab in Asia.

After realizing early success, the manufacturer's team requested that a Forte Series platform with Forte MAX dual-valve IntelliJet jetting be installed at one of their onsite locations to monitor the results themselves.

The Nordson team installed the demo platform at the manufacturer's site two weeks later. It remained there for three months while the manufacturer and Nordson technical teams collaborated to program recipe conversions and evaluate the system.

At the end of the successful three-month onsite evaluation, the manufacturer purchased the Forte Series with Forte MAX.

They started running 12 systems and scheduled several more for delivery.

“I can reduce the number of dispensing platforms that I need to maintain, increase UPH, and take advantage of features for future growth? Show me.”

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After Upgrade: Application Details

- Forte MAX dual IntelliJet jetting
- Multi-pass with 5 passes (to maintain a smaller wet out)
- 0.6 mm wet-out area with 5 passes
- Dot weight: 0.005 mg/dot
- Total dispense weight 1.1 mg
- 258 second cycle time
- Two fiducials per unit
- Calibrated Process Jetting +
- 24/7 production
- 100 units per panel

The Forte Series with Forte MAX Dual IntelliJet Jetting configuration met all requirements for higher UPH and future capacity expansion while reducing the number of systems requiring maintenance.

Lab Demonstration Results

- UPH ultimately increased by > 50%, which was above the originally estimated increase of 10% to 30%
- Fids-on-the-Fly fiducial finding was 6x faster than the same feature on the Spectrum II system
- Reduced dispense verification (DWV) requirements, reduced fluid waste, and increased material cost savings were realized

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What's Next?

The manufacturer plans to increase their Forte Series with Forte MAX install base to a total of 20 units in their Singapore location by the end of 2021 and is planning to expand the same Forte Series configuration into other manufacturing locations in Asia.

Find More Information Online

Upgrade related information:

- [Forte Series and Forte MAX](#) (includes a brochure download)
- [Canvas Dispensing Software](#)
- [IntelliJet Jetting System](#) (includes a brochure download)
- [Fids-on-the-Fly Software](#)
- [Calibrated Process Jetting \(CPJ and CPJ+\)](#)



Contact your local sales representative to discuss equipment upgrade solutions that support your production capacity goals.

At Nordson, quality and service come first. As your fluid dispensing partner, you can count on us for advanced equipment solutions and highly-skilled global application support.

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