Product / Process Change Notice

PCN No.: QA00-202609-002-B Date: 2026-10-29

Change Title: Assembly house "Greatek" move the production line of LQFP 7x7mm 64L package type form Gongyi plant 1 to Gongyi plant 2

Change Classification: Major
Change item: Package Assembly.

Affected Product(s) :

Nuvoton's LQFP 7x7mm, 64L package type, please refer to Appendix A for the detailed effect parts.

Description of Change(s) :

Both Gongyi Plant 1 and Plant 2 are qualified production sites for LQFP packages. The LQFP 7×7mm, 64L production is scheduled to be fully transferred to Gongyi Plant 2, effective from December 31, 2026.

After the transfer, Plant 1 will no longer retain the tooling or production capability for these packages. Only the plant address will be changed; there are no changes to all 4M1E elements.

4M1E item	Current vs. proposed condition	Change status	Risk assessment
Man	Operators, training, certification, staffing	No Change	Low risk
Machine	Model, ID, utilities, calibration, PM	No Change	Low risk
Material	BOM, vendor, storage, shelf life	No Change	Low risk
Method	Flow, recipe, WI, control plan	No Change	Low risk
Environment	Cleanliness, ESD, temperature, humidity	No Change	Low risk
Plant address	Before: Plant 1 (address: No.136, Gong-yi., Zhunan, Miaoli 35044 Taiwan.) After: Plant 2 (address: No.112, Gong-yi., Zhunan, Miaoli 35044 Taiwan.)	Changed	Low risk

Reason for Change(s) :

New production line expansion for strengthening capacity allocation.

Impact of Change(s) : (positive & negative)

Form: No Change.

Fit: No Change.

Function: No Change.

Reliability: No Change.

HSF (Hazardous Substances Free): No Change.

Qualification Plan/ Results :

For the IC package qualification report, it had been finished by Assembly house Greatek on Oct. 28, 2026. It is confirmed all items are passed. Please refer to the Appendix B for details.

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Implementation Plan : ☐ Date Code: NA ☐ Lot No.: NA ☑ Implemented date: Jan. 01, 2027			
Originator:	***H.Y. Lai / QA10***	***Approval:(QA Director)***	***A.Yoshida / QA00***
Contact for Questions & Concerns	Name: HYLai TEL: 886-3-5770066 (ext. 21226) Address: No.4, Creation Rd. III Science-Based Industrial Park Hsinchu, Taiwan, R.O.C.. E-mail: hylai0@nuvoton.com.		

Customer Comments:

*Note: Please sign this notice, and return to **Nuvoton** contact within **30** days. If no response is received within **30** days, this Change Request will be assumed to meet your approval.*

☐ Approved ☐ Rejected ☐ Conditional Approval: _____.

Date: _____ Dept. name:_____ Person in charge:_____.

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Appendix A:

Part No	Part No	Part No	Part No
93F150	M252SD2AE	M484SIDAE2U	NCT5584D
I91230RI	M252SE3AE	M485SIDAE	NCT5585D
I91260CRI	M252SG6AE	M487SIDAE	NCT5889D
I91260RI	M254SD2AE	M48SSIDAE	NDA102SD2
I94124CDI	M256SD2AE	ML51SD1AE	NDA102SE3
I94124HDI	M256SE3AE	ML54SD1AE	NUC029SDE
I94124PDI	M256SG6AE	N572F072G	NUC029SEE
I94124SDI	M258SG6AE	N572S16A	NUC029SGE
I941A24ADI	M261SIAAE	N574F128S	NUC121SC2AE
I941A24SDI	M2A23SG5AC	N574F1K5S	NUC1261SG4AE
M031SC2AE	M2L31SG4AE	NANO100SD3BN	NUC1262SE4AE
M031SD2AE	M2L31SGDAE	NANO100SE3BN	NUC1263SD4CE
M031SE3AE	M2L31SIDAE	NANO110SC2BN	NUC126SE4AE
M031SG6AE	M3334SIGAE	NANO110SD2BN	NUC126SG4AE
M031SG8AE	M463SGCAE	NANO110SE3BN	NUC131SC2AE
M032SE3AE	M464SGCAE	NANO112SC2AN	NUC131SD2AE
M032SG6AE	M467S2JHAE	NANO120SE3BN	NUC200SE3AN
M032SG8AE	M467SJHAN	NANO130SE3BN	NUC2201SE3AE
M032SIAAE	M481SE8AE	NCT5523D	NUC220SC2AN
M0518SC2AE	M481SGCAE	NCT5524D	NUC230SD2AE
M0518SD2AE	M481SGCAE2A	NCT5525D	NUC230SE3AE
M0564SG4AE	M481SIDAE	NCT5525D-S	NUC240SE3AE
M0564SSAE	M482SGCAE	NCT5532D	NUC505DSA
M058SSAN	M482SIDAE	NCT5539D	UB10
M2301	M483SE8AE	NCT5562D	
M2354SJFAE	M483SGCAE	NCT5566D	
M2354SJFBE	M483SGCAE2A	NCT5567D-B	
M251SC2AE	M483SIDAE	NCT5577D	
M251SD2AE	M484SGAAE2U	NCT5581D	
M251SE3AE	M484SIDAE	NCT5582D	

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Appendix B: LQFP 64L(7x7) package qualification report

GREATEK ELECTRONICS INC.
No.136, Gung-Yi Rd., Chunan Cheng, Miaoli Hsien Taiwan R.O.C.
Tel : (037)638-568 Fax : (037)628-323

Reliability Test Report

Customer : ***

Purpose : Reliability Test.

Package Type : LQFP 64L (7x7)

Report No : Q730-RELI-C2609002

Report Date : 28-OCT-2026

Conclusion : The test results were all passed

Approved By Cloud d **Prepared By :** Francis LT

Date : 28-OCT-2026 **Date :** 28-OCT-2026

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No.136, Gung-Yi Rd., Chunan Cheng, Miaoli Hsien Taiwan R.O.C.
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1. Sample Background

Package Type	LQFP 64L (7*7)	L/F Material	C7025
Device	***	Lead Frame	130*130 mil
Lot No	***	Epoxy	CRM-1076DJ-G
Mo No	FNA0637622704	Wire	Cu wire 0.8 mil Gold wire 0.8mil
Date code	***	Compound	G631M
Exposed pad	NO	Lead Finish	Pure Tin
Apply Date	03-SEP-2026	Sample Size	180 EA
Complete Date	22-OCT-2026	Report No	Q730-RELI-C2609002

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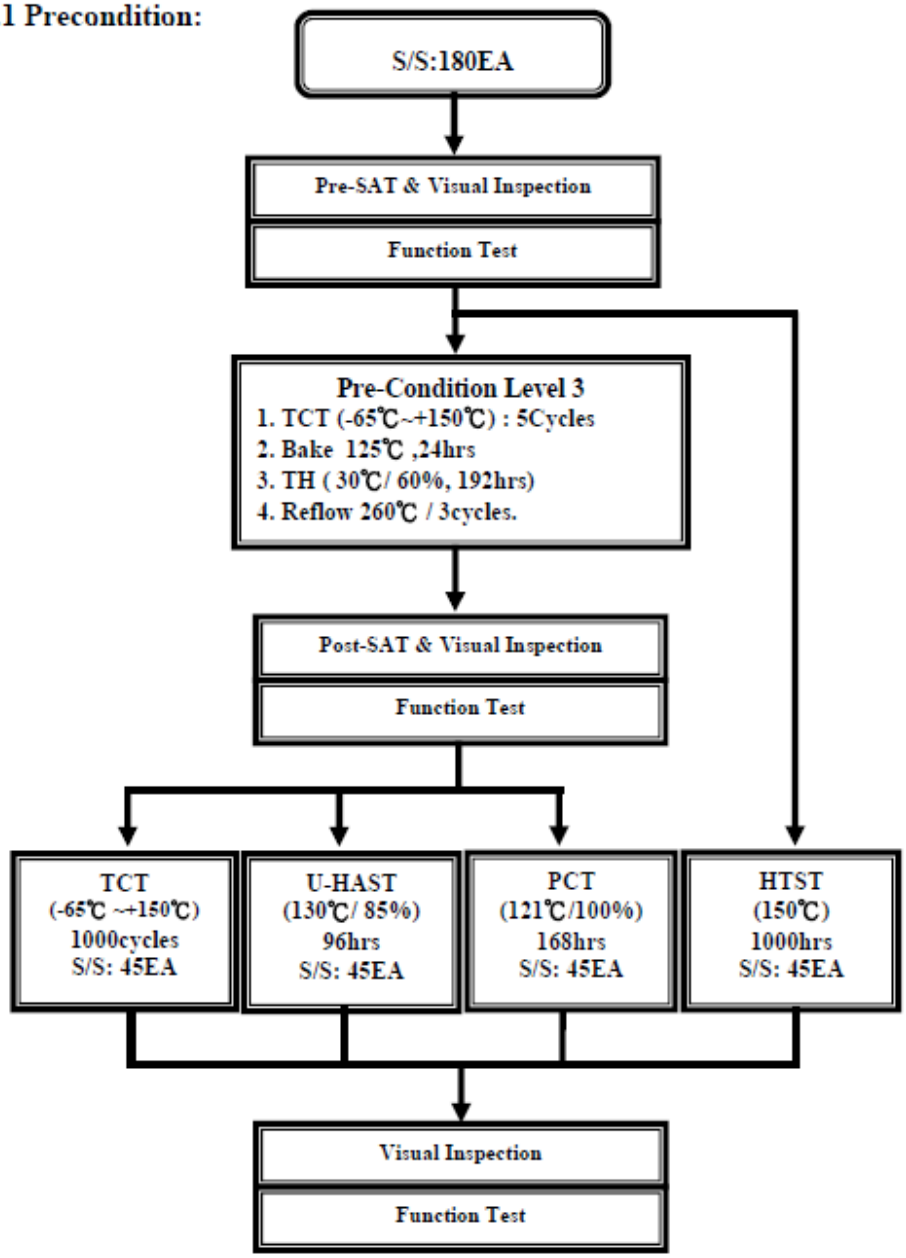
2. Test Flow Chart

2 .1 Precondition:



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3. Inspection method

3.1 Visual Inspection:

Purpose: In order to check whether the samples have package crack or not before/after reliability test.

Apparatus: Power Scope (7~40x)

3.2 SAT Inspection:

Purpose: Inspecting the delamination of concerned layer.

Apparatus: SONIX ECHO-VS

4. Environment Stress / Mechanical Test

4.1 Precondition:

This test method establishes an industry standard preconditioning flow for plastic SMDs (surface mount device) that is representative of a typical industry multiple solder reflow operation.

Test procedure is as following:

Stept1: TCT (-65℃~+150℃) 5cycles

Stept2: Bake 125℃ ,24hrs

Stept3: Moisture Soak (30℃/60% /192hrs)

Stept4: Reflow 260℃ / 3cycles

4.2 Pressure Cooker Test :

The "Accelerated Moisture Resistance Test" is performed for the purpose of evaluating the moisture resistance of nonhermetic packaged solid state devices. It employs severe conditions of pressure, humidity and temperature that accelerate the penetration of moisture through the external protective material (encapsulant or seal) or along the interface between the external protective material and the metallic conductors that pass through it. This test is destructive; it may* be used for qualification, lot acceptance and as a product monitor.

Test condition: 121℃/100, 2atm, 168hrs.

4.3 Temperature Cycle Test :

This test is conducted to determine the resistance of a part to extremes of high- and low-temperatures, and to the effect of alternate exposures to these extremes.

Test condition: -65℃ ~ +150℃,1000cycles.

4.4 High Temperature Storage Life:

The purpose of this test is to determine the effect on solid state electronic devices of storage at elevated temperature without electrical stress applied. This test is considered destructive and, therefore, is applicable for device qualification.

Test condition: 150℃, 1000hrs

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4.5 Highly-Accelerated Temperature and Humidity Stress Test (without bias):

The Highly-Accelerated Temperature and Humidity Stress Test is performed for the purpose of evaluating the reliability of non-hermetic packaged solid-state devices in humid environments. It employs severe conditions of temperature, humidity, and bias which accelerate the penetration of moisture through the external protective material (encapsulant or seal) or along the interface between the external protective material and the metallic conductors which pass through it. The stress usually activates the same failure mechanisms as the "85/85" Steady-State Humidity Life Test .
(JEDEC Standard No. 22-A101).

Test condition: 130℃/85% , 96 hrs.

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5. Reliability Test Results

5.1 Summary of test results：

Test Procedure	Sample Size	Visual Insp. Rej/s.s	Function Test rej/s.	SAT insp Rej/s.s	Judgment
Before Pre-condition	135EA	0/135	0/135	0/22	PASS
After Pre-condition	135EA	0/135	0/135	0/22	PASS
HTST 1000hrs	45EA	0/45	0/45	N/A	PASS
PCT 168hrs	45EA	0/45	0/45	N/A	PASS
u-HAST 96hrs	45EA	0/45	0/45	N/A	PASS
TCT 1000cycles	45EA	0/45	0/45	N/A	PASS

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6. Conclusion

The test results were all passed.

7. Reference

- **JESD22-A113** Preconditioning of Plastic Surface Mount Devices Prior to Reliability Testing
- **IPC/JEDEC J-STD-020E** Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Surface Mount Devices.
- **JESD22-A101** Temperature/Humidity Chamber Operation Instruction
- **JESD22-A102** Pressure Cooker Test
- **JESD22-A103** High Temperature Storage Life Test
- **JESD22-A104** Temperature cycling
- **Greatek Spec #QA-00-402** SAT Operation Instruction.
- **JESD22-A118** Accelerated Moisture Resistance -Unbiased HAST.

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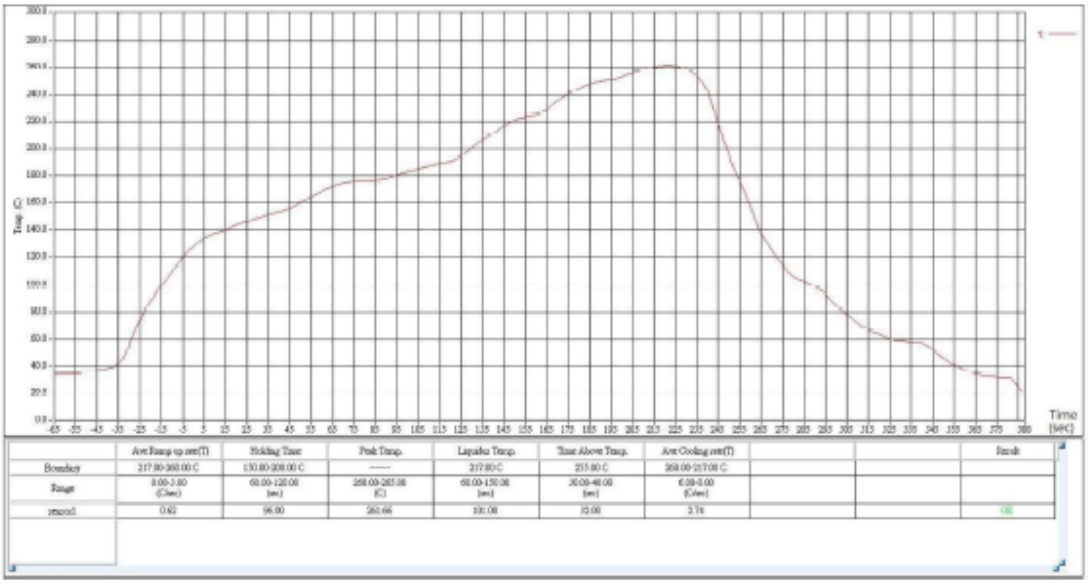
8. Reflow Profile:

PROFILE for SMD.



	Ave Ramp up rate(T)	Holding Time	Peak Temp.	Liquidus Temp.	Time Above Temp.	Ave Cooling rate(T)			Result
Boundary	217.00-260.00 C	150.00-200.00 C	------	217.00 C	255.00 C	260.00-217.00 C			
Range	0.00-3.00 (C/sec)	60.00-120.00 (sec)	258.00-265.00 (C)	60.00-150.00 (sec)	30.00-40.00 (sec)	6.00-0.00 (C/sec)			
record	0.82	96.00	260.66	100.00	32.00	2.76			OK

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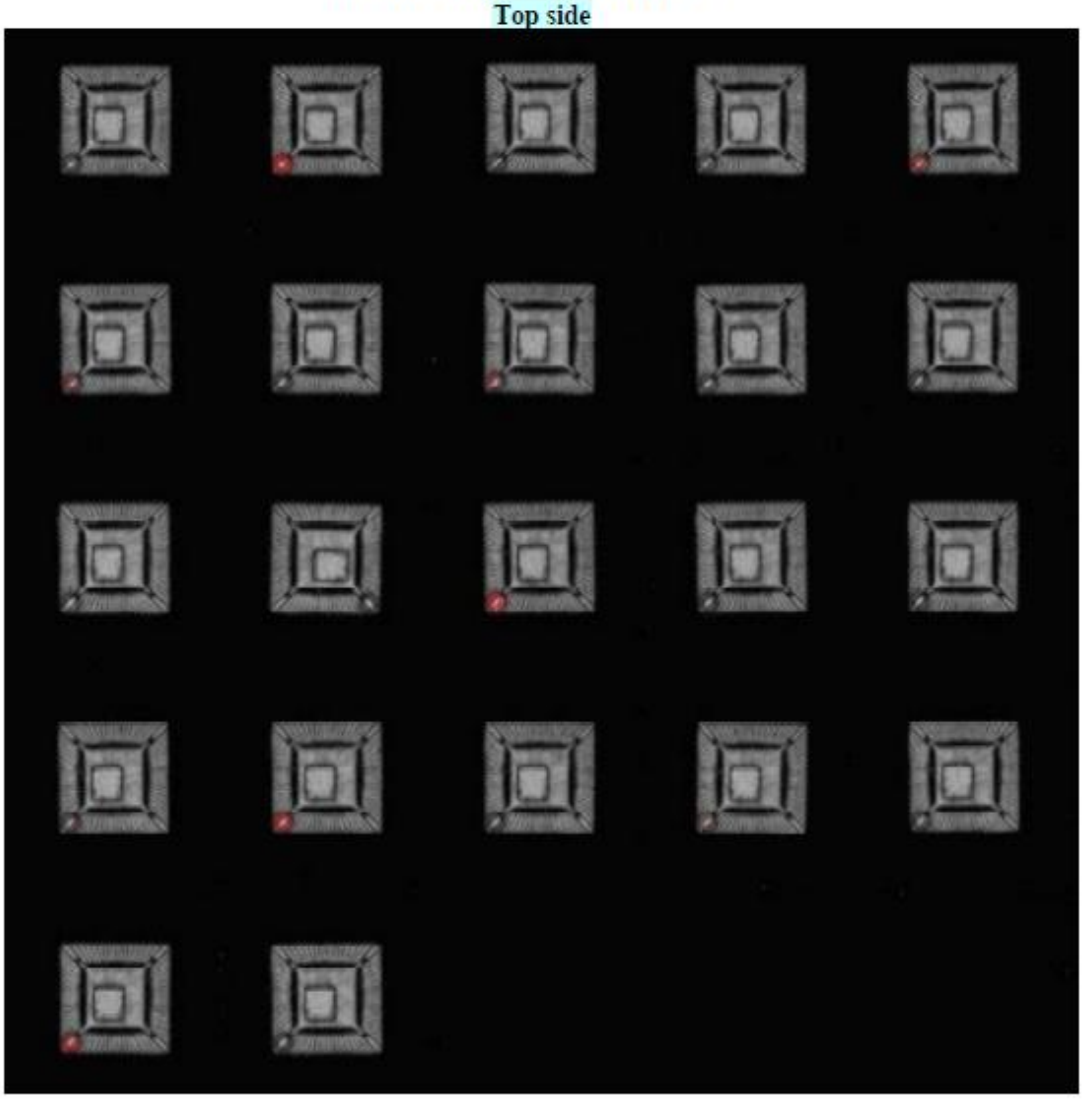
10. SAT Photo：

Before Precondition (MSL 3)：

Top side



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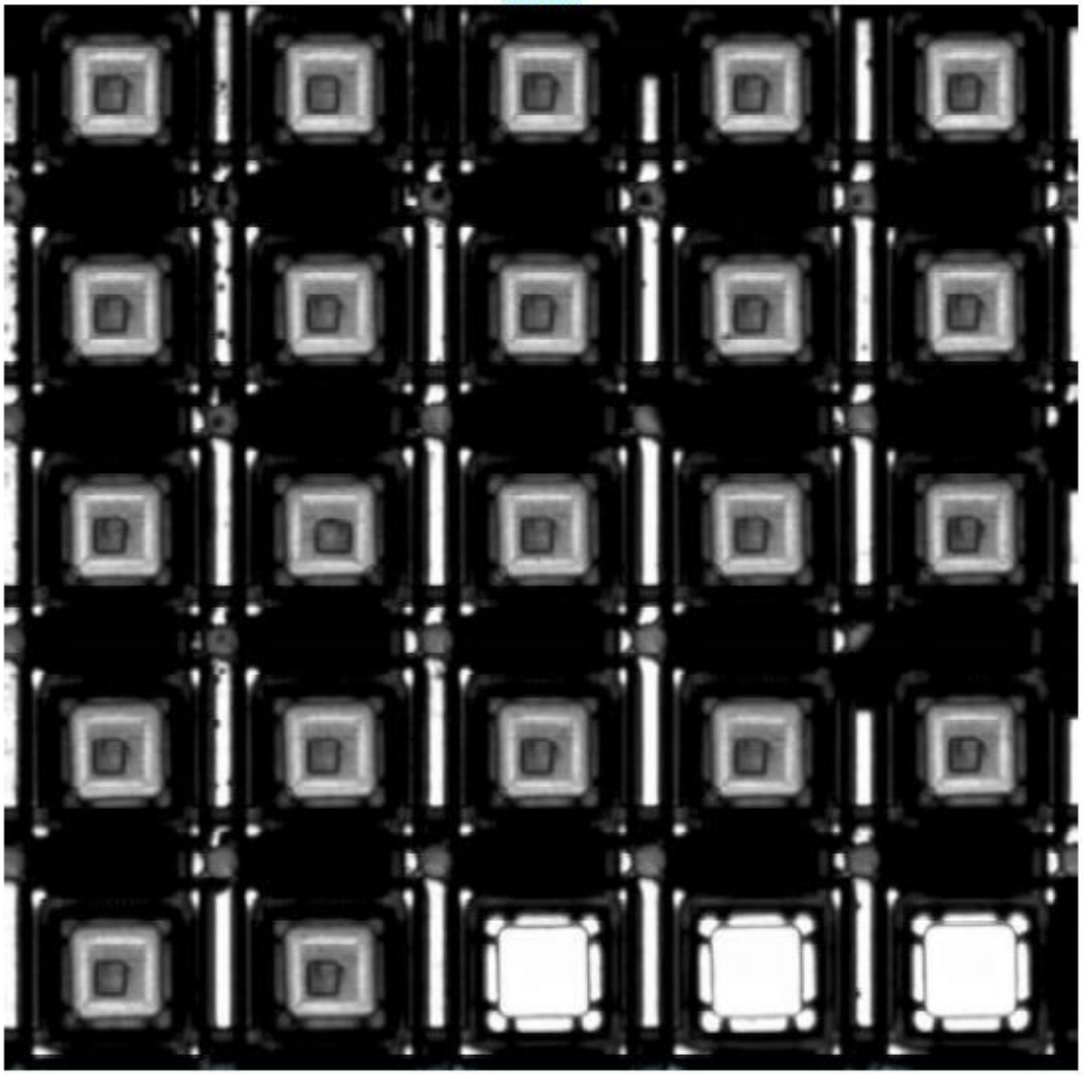
T-scan



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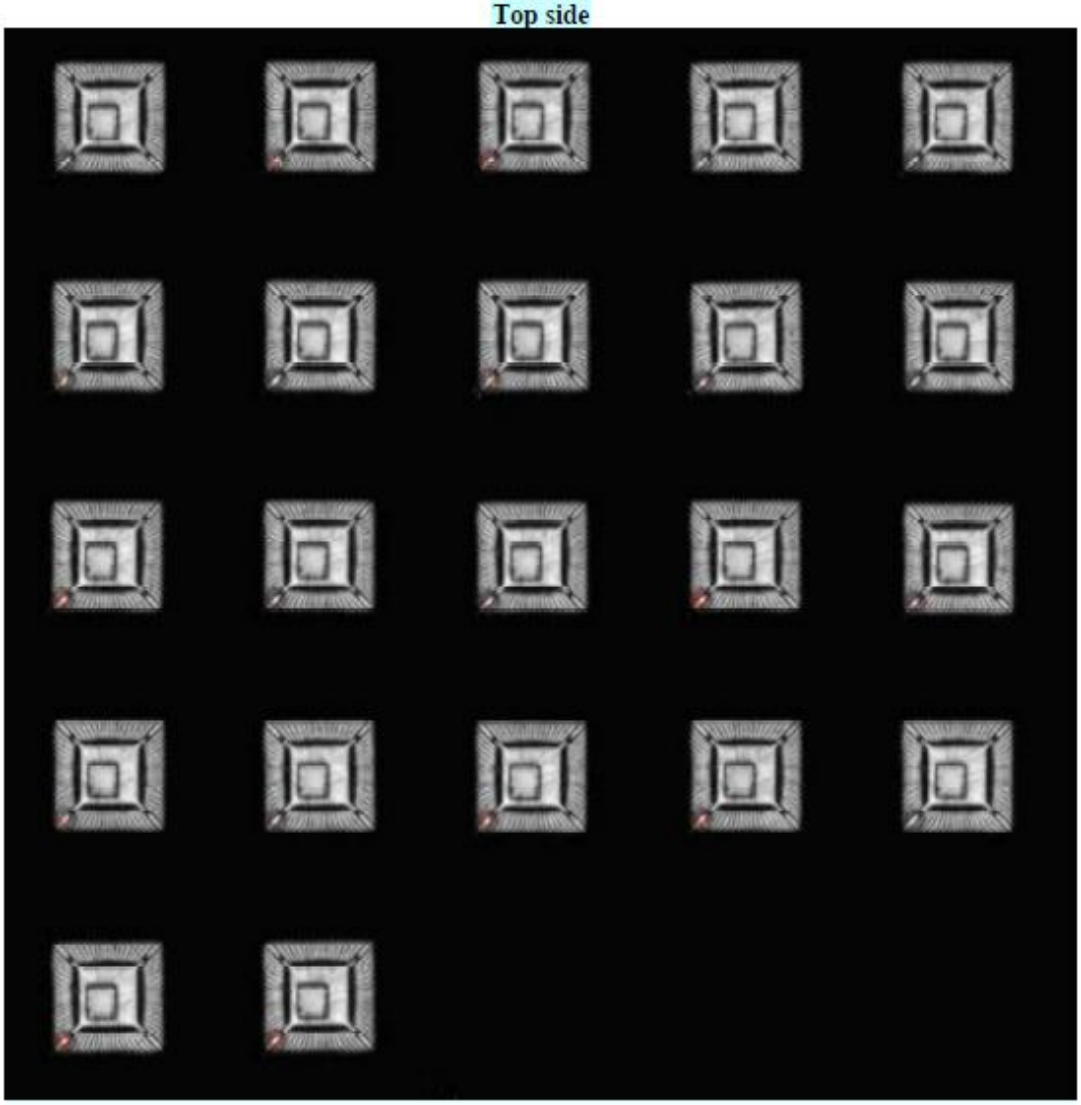
After Precondition (MSL 3) :

Top side



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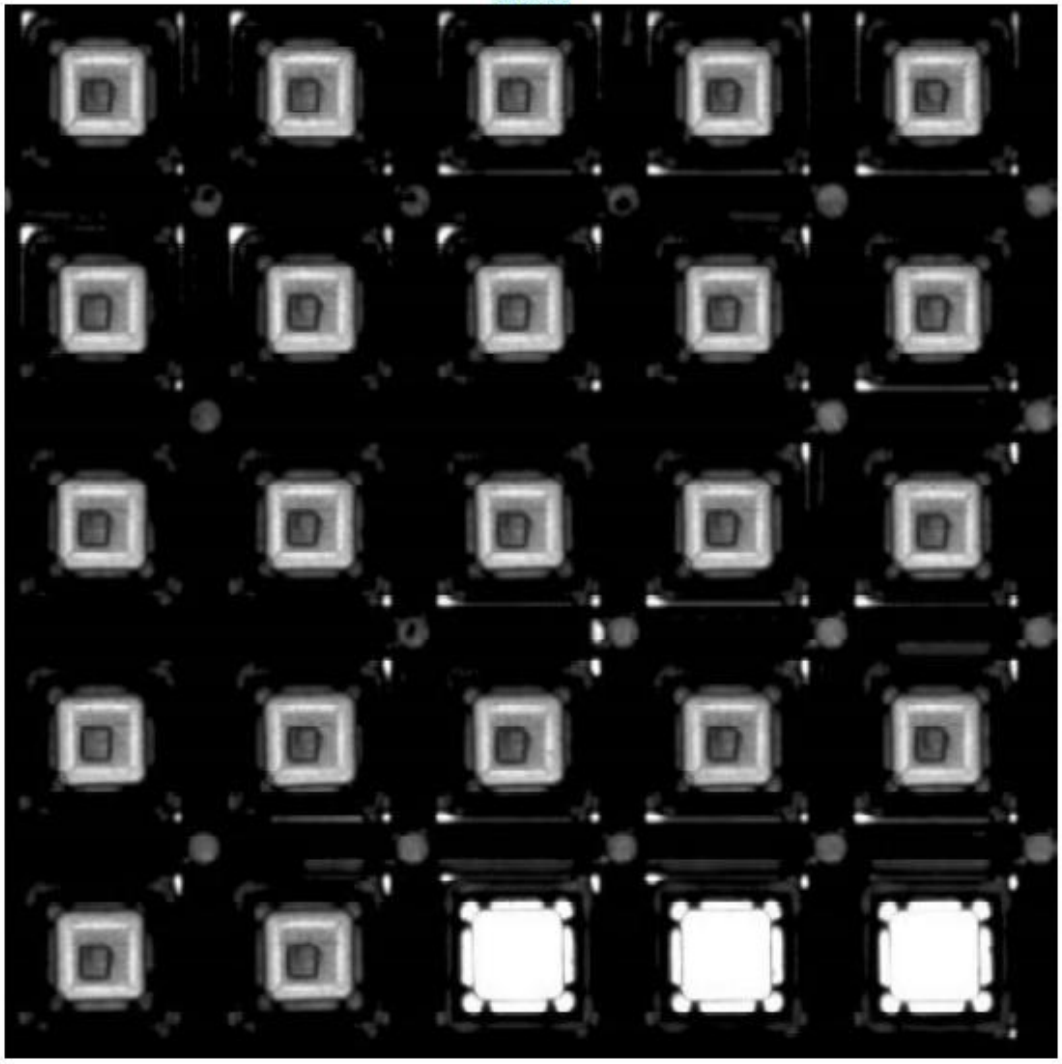

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