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Project Inspection Report

Company : NA
Address : NA
Sample Name : STM32F103RCT6R
Manufacture : ST
Date Code : N/A
Package Type : LQFP-64
Sample Number : 1100pcs
Check Number : 1100pcs
Date of Received : 09/10/2021
Date of Tested : 10:00/09/10/2021 ~ 15:00/09/13/2021

WE HEREBY CERTIFY THAT:

The test(s) shown in the attachment were conducted according to the indicating procedures. We assume full responsibility for the accuracy and completeness of these tests and vouch for the qualifications of all personnel performing them.

Inspected by Engineer
Star_Wu

Reviewed by Project Manager
lucy

Note:

1. This report will be invalid if reproduced in whole or in part.
2. This report refers only to the specimen(s) submitted to test, and is invalid if used separately.
3. This report is only valid with the examination seal and signature of this institute.
4. The tested specimen(s) will only be preserved for thirty days from the date issued, if not collected by the applicant.
5. This report is only responsible for the samples tested.



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Add: F/r 401 Building A, Ying Da Feng industrial No,393,Jihua Rd.LongGang
Dis. Shenzhen China
Tel: 0755-83762185

Email:engineer@iclab-cn.com



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Items test

- External visual inspection
- Pin Correlation Test
- Programming test
- Solder ability Analysis
- Radiography (X-ray)
- ROHS test
- Key Functional Testing (KFT)
- Baking
- Tape and Reel
- Internal visual inspection

Methods & Equipment

1.1 Applicable Standard

- GB/T 17574-1998 IV 3-6
- MIL-STD-883L-2019 2012.11

1.2 Optical Microscope

- Equipment Spec.:
Top view: FINIAL Hi-scope System SEZ-260: X7 ~ X45

1.3 Functional testing Equipment

- SUPERPOR/6100N:
Support numerous (over 10,000) types of devices, including PROM, E/EPROM, PLD and MCU from more than 150 manufacturers.
Device insertion test (48 pins or less) to detect defective chips, improperly inserted devices and pins of poor contact (model dependent)

1.4 Radiography (X-ray)

- Equipment Spec:
Hardware:XiDAT Dage XD6500
Software:11.56-DD6058
Magnification in excess of 2800x
Resolution below 2um
Energy:60KV/40uA



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1.5 Testing environment

- Ambient temperature: 25±5°C Relative humidity: 45%-65%RH

1.6 Testing base

- [ST STM32F103RCT6R]:
<https://www.semiee.com/file/ST/ST-STM32F103RC.pdf>

Analysis Summary

Programming test Results:

Programming test	Result:
Total quantity tested:	1100pcs
Total quantity passed:	1098pcs
Total quantity failed:	2pcs
Note:	2pcs devices failed programing test.

Programming test Result:

Tested Parameters	Result
Pin continuity	Pass
ID Check	1099PCS Pass 1PCS Failed
Program	Pass
Verify	Pass
Erase	1098PCS Pass 2PCS Failed
Blank Check	Pass



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X-ray Analysis:

Applicable Standard: MIL-STD-883L-2019 2012.11

X-ray Inspection on 10 PCS (#1-#10) samples . Two internal structures are found, #1-#4、#6-#7、#9-#10 Consistent internal structure, #5、#8Consistent internal structure. #7 Abnormal bonding wire was found, #1-#6、#8-#10 No bonding wire broken melting and other abnormalities were found.

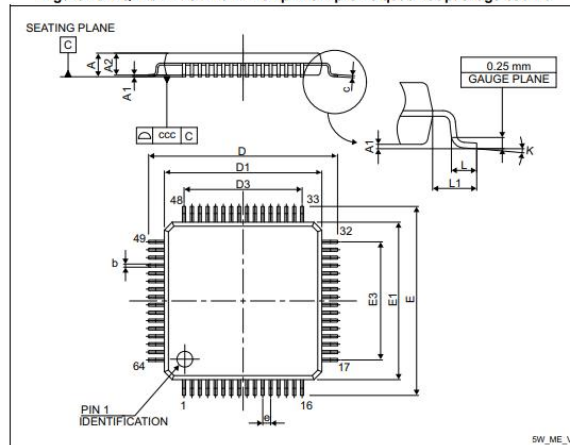
1. Device Description:

The STM32F103xC, STM32F103xD and STM32F103xE performance line family incorporates the high-performance Arm® Cortex®-M3 32-bit RISC core operating at a 72 MHz frequency, high-speed embedded memories (Flash memory up to 512 Kbytes and SRAM up to 64 Kbytes), and an extensive range of enhanced I/Os and peripherals connected to two APB buses. All devices offer three 12-bit ADCs, four general-purpose 16-bit timers plus two PWM timers, as well as standard and advanced communication interfaces: up to two I2Cs, three SPIs, two I2Ss, one SDIO, five USARTs, an USB and a CAN.

2. Package dimensions:

6.6 LQFP64 package information

Figure 76. LQFP64 – 10 x 10 mm 64 pin low-profile quad flat package outline



1. Drawing is not in scale.

Table 73. LQFP64 – 10 x 10 mm 64 pin low-profile quad flat package mechanical data

Symbol	millimeters			inches ⁽¹⁾		
	Min	Typ	Max	Min	Typ	Max
A	-	-	1.600	-	-	0.0630
A1	0.050	-	0.150	0.0020	-	0.0059
A2	1.350	1.400	1.450	0.0531	0.0551	0.0571
b	0.170	0.220	0.270	0.0067	0.0087	0.0106
c	0.090	-	0.200	0.0035	-	0.0079
D	-	12.000	-	-	0.4724	-
D1	-	10.000	-	-	0.3937	-
D3	-	7.500	-	-	0.2953	-
E	-	12.000	-	-	0.4724	-
E1	-	10.000	-	-	0.3937	-



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3. Receiving Inspection:

Gross Weight:	2.2kg	Parts Total	1100PCS
Number Of Boxes	1	Intact Label	Acceptable
Package type	Tray	Moisture protection	Acceptable
MSL	3	ESD protection	Acceptable

Received View-1



Received View-2



Received View-3



Received View-4





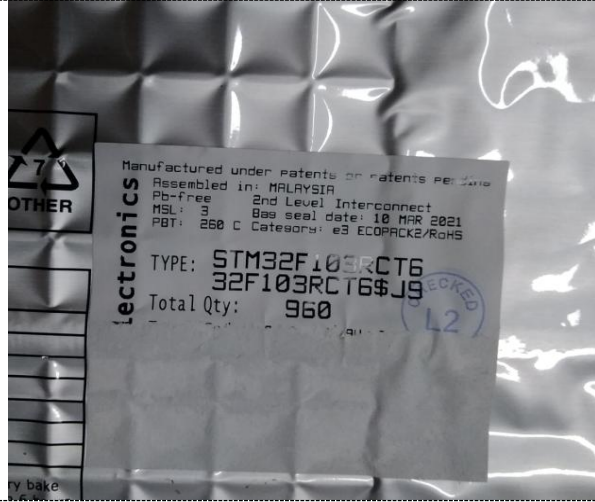
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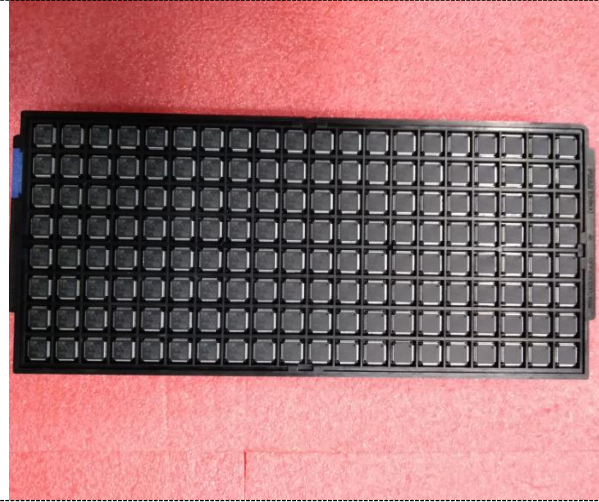


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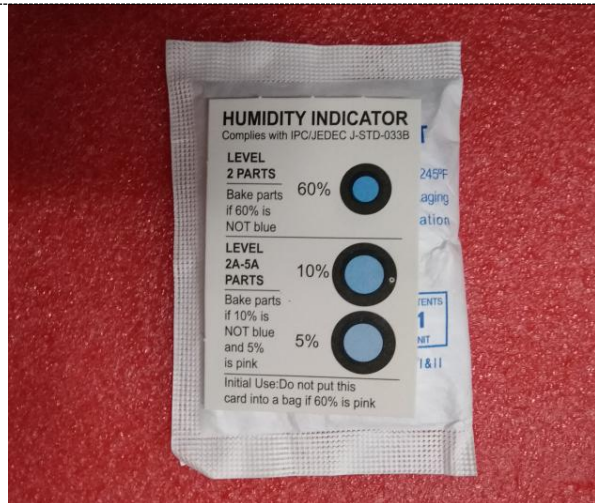
Received View-5



Received View-6



Received View-7



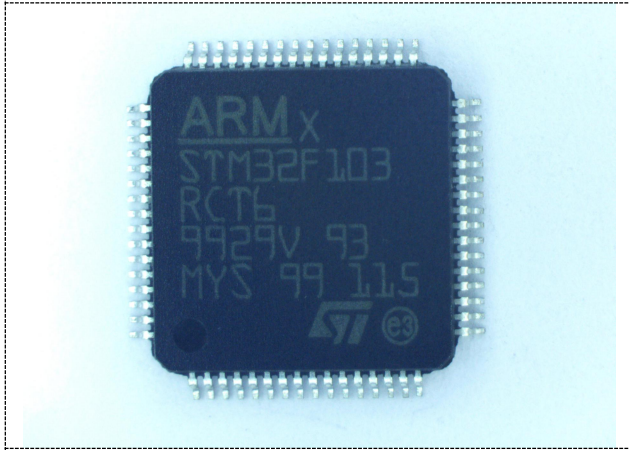
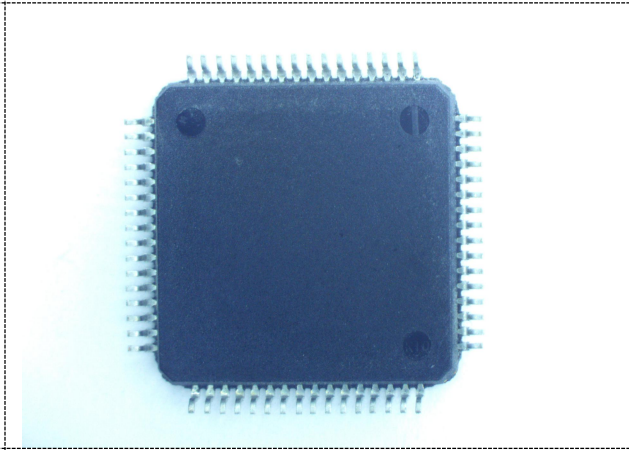
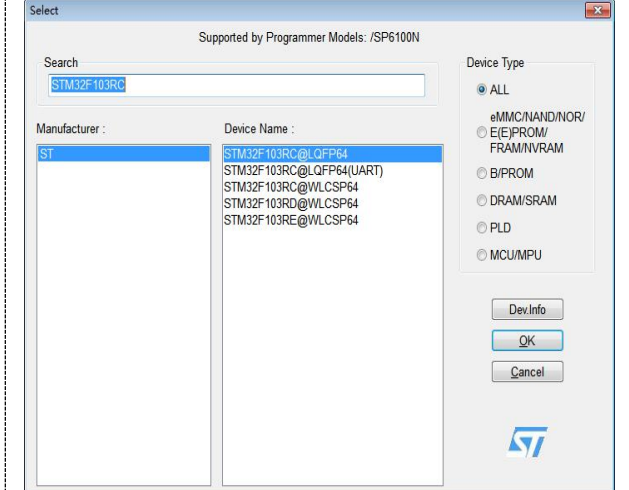
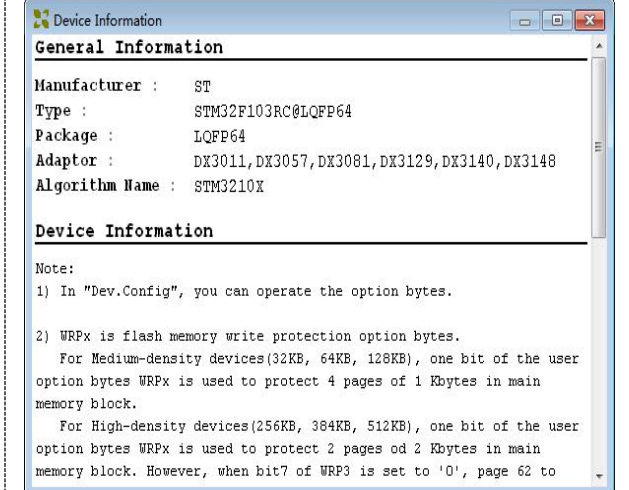


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4. Programming test:

Devices were tested for the followings using Xeltek platform at 25°C:

- Pin continuity: Wrong chip insertion check. Prevent chips from accidental damage.
- ID Check: Device ID is the code read from the chip to identify the manufacturer and the device type. If the device ID is unmatched, an error will occur.
- Blank Check: Ensure no program on device.
- Program: Devices are programmed with random data.
- Verify: The function compares the content of the buffer to that of the chip. If there is any discrepancy, verification will cease and failure message will be displayed. Only the chips that pass verification can be recognized as chips being programmed correctly.
- Erase: Erase the chip to blank state.
- Blank Check: Ensure devices erased properly.

<p style="text-align: center;">Top</p> 	<p style="text-align: center;">Bottom</p> 
<p style="text-align: center;">Select Parts</p> 	<p style="text-align: center;">Device Information</p> 



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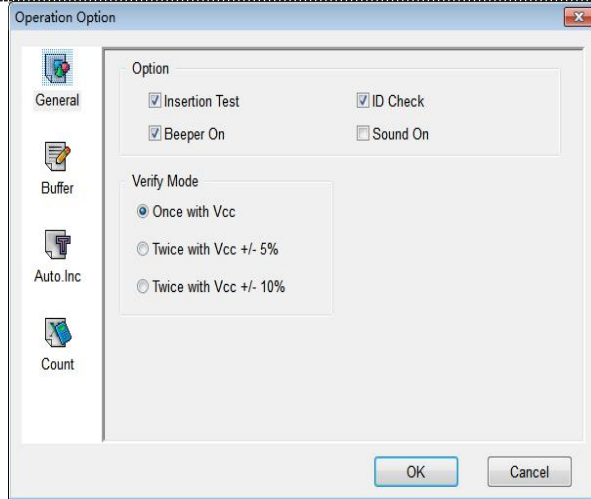
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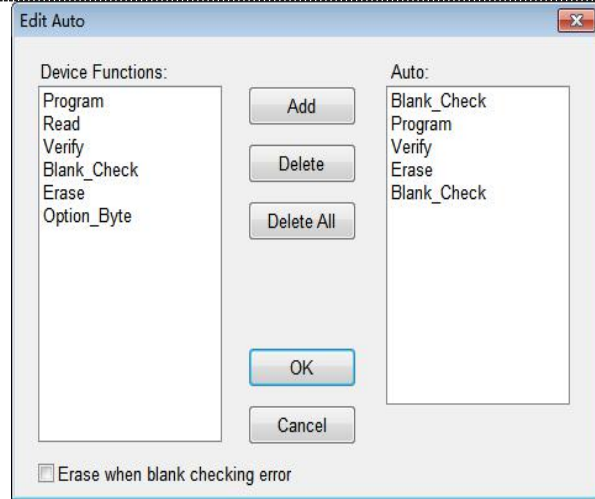


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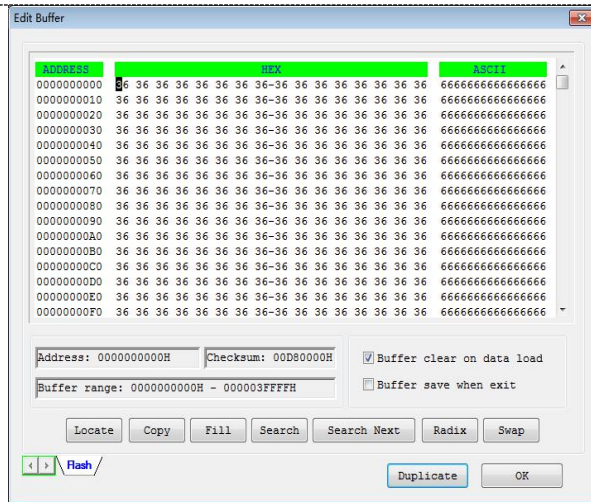
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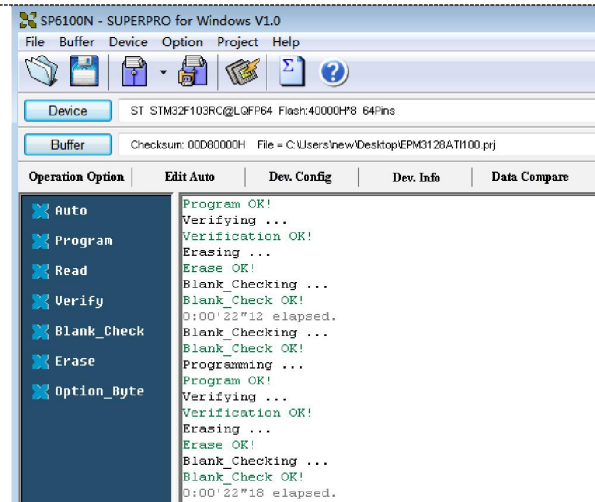
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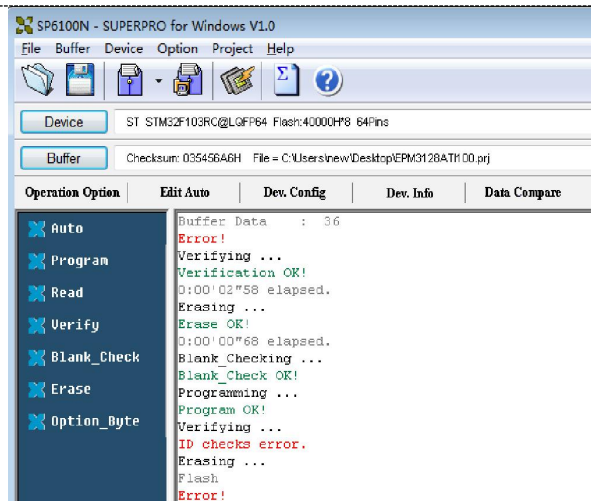
Edit Buffer



Test Result (Pass)



ID checks error & Erasing error





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Programming test Results:

Programming test	Result:
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Total quantity passed:	1098pcs
Total quantity failed:	2pcs
Note:	2pcs devices failed programing test.

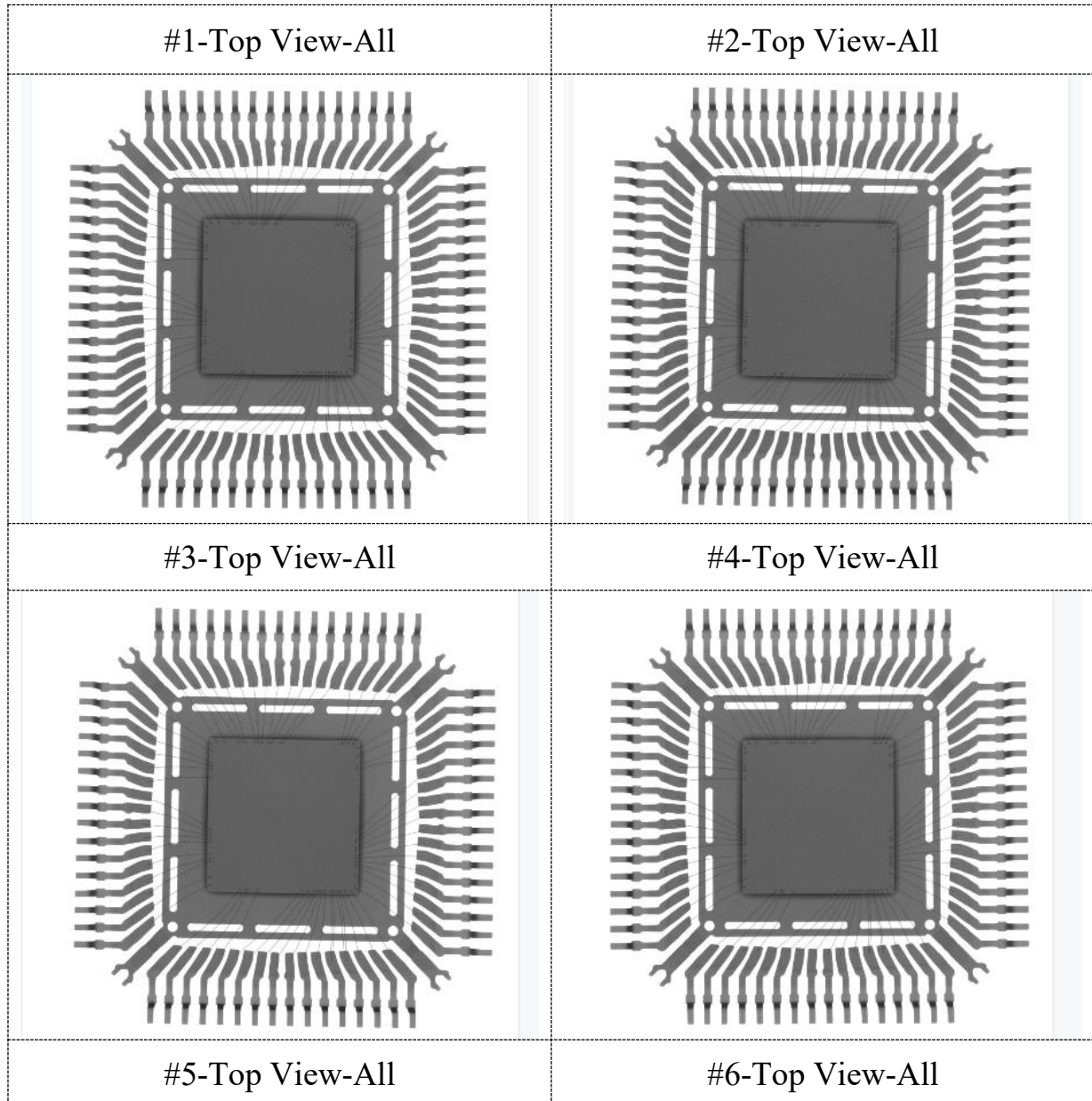


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5.X-ray Analysis:

Applicable Standard: MIL-STD-883L-2019 2012.11

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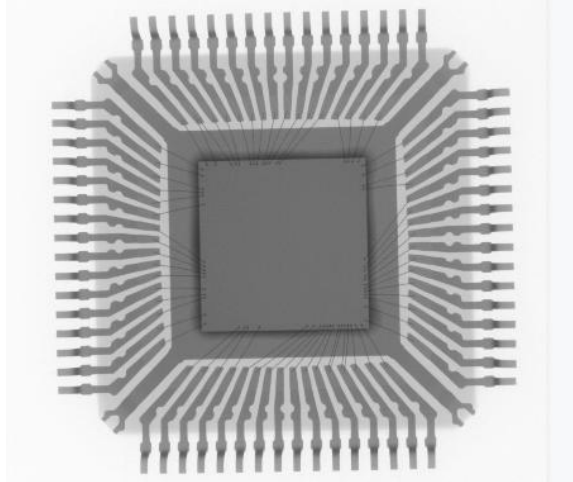


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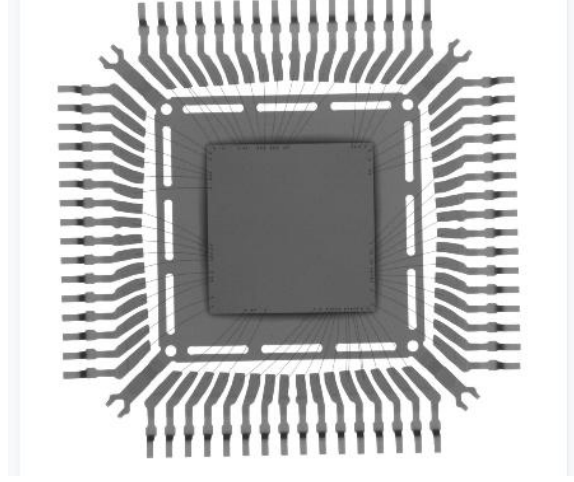
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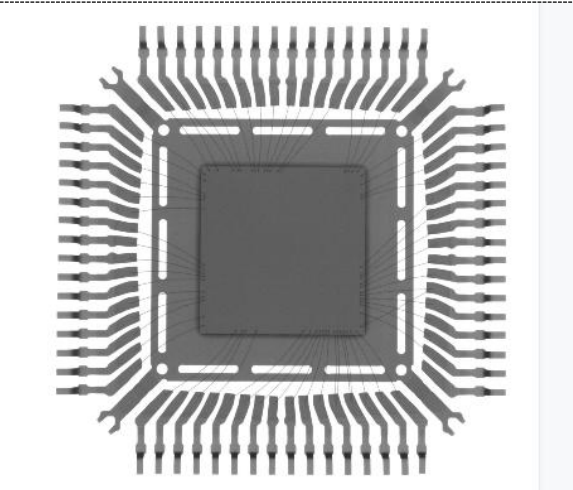
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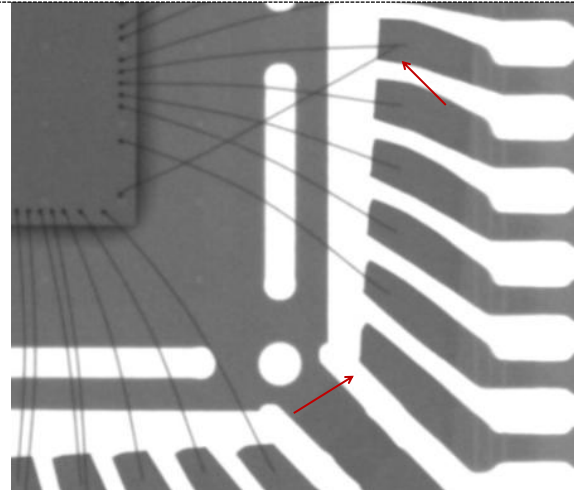
#7-Top View-All



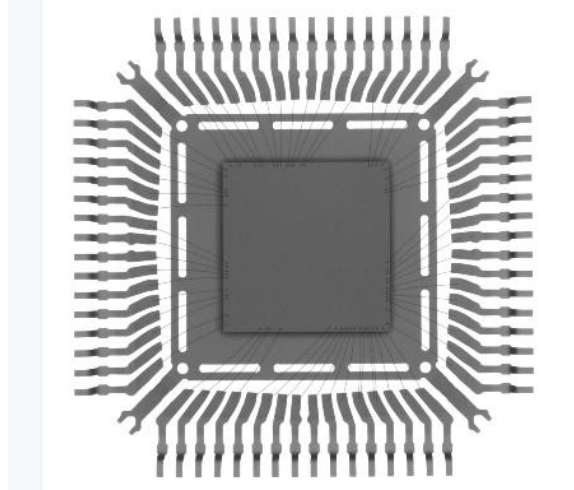
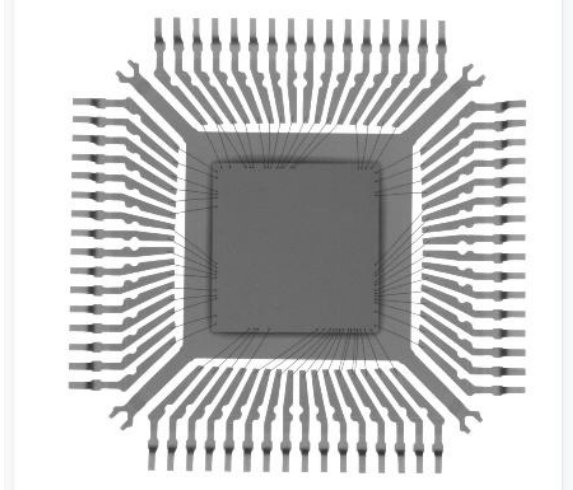
#7-Top View-Zoom
(Abnormal bonding wire)



#8-Top View-All



#9-Top View-All





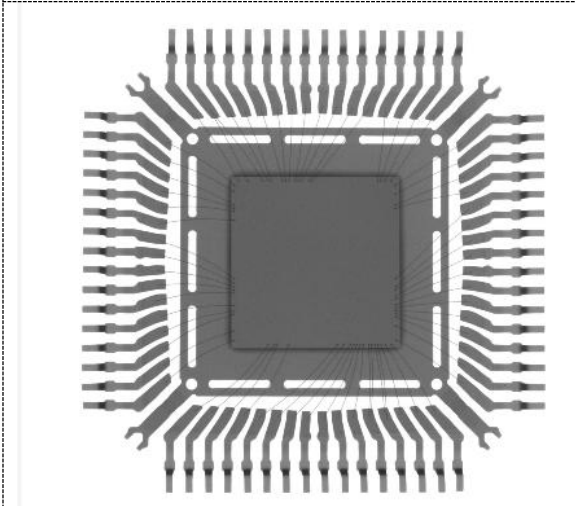
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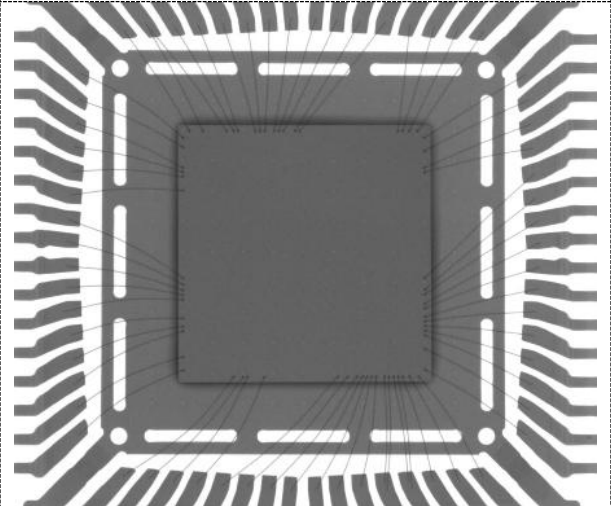


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#10-Top View-All



#10-Top View-Zoom



END

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