PRODUCT / PROCESS CHANGE NOTIFICATION

1. PCN basic data

1.1 Company	STMicroelectronics International N.V
1.2 PCN No.	MDG/22/13736
1.3 Title of PCN	SAMSUNG Foundry (South Korea) additional source for STM32H7Ax & STM32H7Bx 2MB listed products
1.4 Product Category	STM32H7Ax, STM32H7Bx
1.5 Issue date	2022-11-24

2. PCN Team

2.1 Contact supplier	
2.1.1 Name	ROBERTSON HEATHER
2.1.2 Phone	+1 8475853058
2.1.3 Email	heather.robertson@st.com
2.2 Change responsibility	
2.2.1 Product Manager	Ricardo Antonio DE SA EARP
2.1.2 Marketing Manager	Veronique BARLATIER
2.1.3 Quality Manager	Pascal NARCHE

3. Change

3.1 Category	3.2 Type of change	3.3 Manufacturing Location
Transfer	Line transfer for a full process or process brick (process step, control plan, recipes) from one site to another site: Wafer fabrication	ST Crolles (France) SAMSUNG Foundry (South Korea)

4. Description of change

	Old	New
4.1 Description	Front-end source: - ST Crolles 12" France	Front-end sources: - ST Crolles 12" (France) - SAMSUNG Foundry 12" (South Korea) - added source There is no change in the product functionality. Please refer to PCN 13736 – Additional information attached document.
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	Packaged products : no change.	

5. Reason / motivation for change

5.1 Motivation	Due to the success on the market of STM32 devices, ST General Purpose Microcontroller division decided to qualify an additional front-end site to maintain state of the art service level to our customers thanks to extra capacity.
5.2 Customer Benefit	CAPACITY INCREASE

6. Marking of parts / traceability of change

6.1 Description	Change is visible through diffusion traceability plant, on the marking: - “VQ” for ST Crolles 12" (France) - “LM” for SAMSUNG 12" (South Korea)

7. Timing / schedule

7.1 Date of qualification results	2023-03-20
7.2 Intended start of delivery	2023-03-20
7.3 Qualification sample available?	Upon Request

8. Qualification / Validation

8.1 Description	13736 MDG-GPM-RER2203 -PCN13736- eSTM40 tranfser to Samsung Foundry for STM32H7 (die 480) - Reliability Plan.pdf		
8.2 Qualification report and qualification results	Available (see attachment)	**Issue Date**	2022-11-24

9. Attachments (additional documentations)

13736 Public product.pdf
13736 MDG-GPM-RER2203 -PCN13736- eSTM40 tranfser to Samsung Foundry for STM32H7 (die 480) - Reliability Plan.pdf
13736 PCN13736_Additional information.pdf

10. Affected parts

10. 1 Current		10.2 New (if applicable)
10.1.1 Customer Part No	**10.1.2 Supplier Part No**	**10.1.2 Supplier Part No**
	STM32H7A3IIT6Q	
	STM32H7A3LIH6Q	
	STM32H7A3RGT6	
	STM32H7A3RIT6	
	STM32H7A3VGT6	
	STM32H7A3VIH6	
	STM32H7A3VIT6	
	STM32H7A3VIT6Q	
	STM32H7A3ZIT6	
	STM32H7A3ZIT6Q	
	STM32H7B0VBT6	
	STM32H7B0VBT6TR	

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RERMCD2203
eSTM40 Technology Transfer from CR300 to SAMSUNG Foundry– Die 480

Reliability Evaluation Plan

October 26th, 2022

MDG MCD Quality & Reliability

RERMCD2203 –
eSTM40 Technology Transfer from CR300 to SF– Die Test Vehicle

Die Vehicle	Process Perimeter	Assembly Line	Package	Number of Reliability Lots
480	eSTM40	ATP3	TFBGA225 13x13 Gold	3 lots
480	eSTM40	ASE	LQFP176 24x24 Gold - SMPS	3 lots

RERMCD2203 – eSTM40 Technology Transfer from CR300 to SF– Die Reliability Trials (vehicle test : die 480)

Reliability Trial & Standard		Test Conditions	Pass criteria	Lot Strategy	Units per Lot	Package
DIE ELFR	Early Life Failure Rate MIL-STD-883 Method 1005 JESD22-A108 JESD74	125°C & 3.6V	48h	3 lots	800	TFBGA225
DIE HTOL	High Temperature Operating Lifetest MIL-STD-883 Method 1005 JESD22-A108	125°C & 3.6V	1200h	3 lots	77	TFBGA225
SMPS HTOL	High Temperature Operating Lifetest MIL-STD-883 Method 1005 JESD22-A108	125°C & 3.6V	1200h	3 lots	77	LQFP176
EDR	Endurance Data Retention JESD22-A117 JESD22-A103	125°C & 3.6V Cycling 150°C Bake	10k cycles Bake 150°C 1500h	3 lots	77	TFBGA225
EDR	Endurance Data Retention JESD22-A117 JESD22-A103	25°C & 3.6V Cycling 150°C Bake	10k cycles Bake 150°C 168h	3 lots	77	TFBGA225
EDR	Endurance Data Retention JESD22-A117 JESD22-A103	-40°C & 3.6V Cycling 150°C Bake	10k cycles Bake 150°C 168h	3 lots	77	TFBGA225
LU	Latch Up EIA/JESD 78A 0018695 JESD78	125°C	No concern	3 lots	6	TFBGA225
ESD HBM	ElectroStatic Discharge Human Body Model JESD22-A114/C101	25°C	2kV, class 2	3 lots	3	TFBGA225

RERMCD2203 – eSTM40 Technology Transfer from CR300 to SF–480 Package Test Vehicle

Package Line	Assembly Line	Package	Device (RawLine Code)	Diffusion Process Plant	Number of Reliability Lots
TFBGA	ATP3	TFBGA225 13*13	STM32H7B2LIH6Q (P6IB*480ESX1)	SAMSUNG FabS1 eSTM40	3
TFBGA	ATP3	TFBGA216 13*13	STM32H7A3NGH6 (P2RM*480ESX1)		Only ESD CDM
TFBGA	ATP3	TFBGA100 8*8	STM32H7A3VGH6 (P2DY*480ESX1)		Only ESD CDM
UFBGA	ATP3	UFBGA176 10*10	STM32H7A3IIK6 (Q1MR*480ESX1)		1
UFBGA	ATP3	UFBGA169 7*7	STM32H7B0ABI6Q (Q7OQ*480ESX1		Only ESD CDM
LQFP	ASE	LQFP100 14*14	STM32H7A3VIT6 (E11L*480ESX1)		3
LQFP	ASE	LQFP176 24*24	STM32H7A3IIT6 (E11T*480ESX1)		1
LQFP	ATP1	LQFP144 20*20	STM32H7A3ZIT6 (X11A*480ZZX1)		1
LQFP	SCCJ	LQFP64 10*10	STM32H7A3RIT6 (755W*480ZZX1)		1
WLCSP	ATT1	WLCSP132 PB	STM32H7B3QIY6QTR (T9J1*480ESX1)		3

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RERMCD2203 – eSTM40 Technology Transfer from CR300 to SF– Package Reliability Trials (vehicle test : die 480)

Reliability Trial & Standard		Test Conditions	Pass Criteria	Unit per Lot	Lot qty
PC (all bonded packages)	Pre Conditioning: Moisture Sensitivity Jedec Level 3 J-STD-020/ JESD22-A113	Bake (125°C / 24 hrs) Soak (30°C / 60% RH / 192 hrs) for level 3 Convection reflow: 3 passes	3 passes	308	1 to 3 by package
PC (WLCSP)	Pre Conditioning: Moisture Sensitivity Jedec Level 1 J-STD-020/ JESD22-A113	Bake (125°C / 24 hrs) Soak (85°C / 85% RH / 168 hrs) for level 1 Convection reflow: 3 passes	3 passes	308	1 to 3 by package
Uhast(*)	UnBiased Highly Accelerated Temperature and Humidity Stress JESD22 A118	130°C, 85%RH, 2.3 atm	96h	77	1 to 3 by package
TC(*)	Thermal Cycling JESD22 A104	-65°C +150°C	500Cy	77	1 to 3 by package
THB(*)	Biased temperature & humidity stress JESD22 A101	85°C, 85% RH bias	1000h	77	1 to 3 by package
HTSL (*)	High Temperature Storage Life JESD22 A103	150°C- no bias	1000h	77	1 to 3 by package
Construction analysis	ST internal spec with focus on FE-BE	NA	No concern	30	1 by package
ESD	ESD Charge Device Model JESD22-C101	Aligned with device datasheet	1000V	3	1 by package

(*) tests performed after preconditioning

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Thank you

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PRODUCT/PROCESS CHANGE NOTIFICATION
PCN13736
– Additional information

SAMSUNG Foundry (South Korea) additional source for STM32H7Ax & STM32H7Bx 2MB listed products

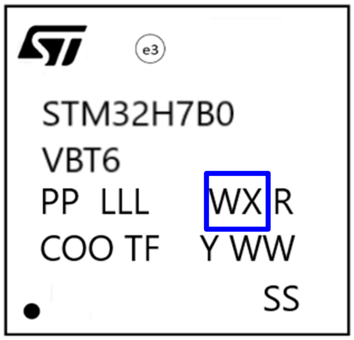
MDG – General Purpose Microcontrollers Division (GPM)

What are the changes?

SAMSUNG Foundry, an additional diffusion FAB has been activated to improve our capacity throughput. We will have the possibility to supply the same commercial product both from Crolles and Samsung foundry.

How can the change be seen?

The standard marking example below
for LQFP 100 14x14 package:



The marking is changing as follows:

Existing		Additional	
WX code	Fab	WX code	Fab
VQ	ST Crolles 12”(France)	**LM**	SAMSUNG Foundry (South Korea)

Codes already available on exisiting and added marking:

PP : Assembly Plant code

LLL : BE sequence

WX : Wafer Diffusion Plant code

COO : Country Of Origin code

TF : Test & Finishing plant code

Y WW : Year Week (manufacturing date)

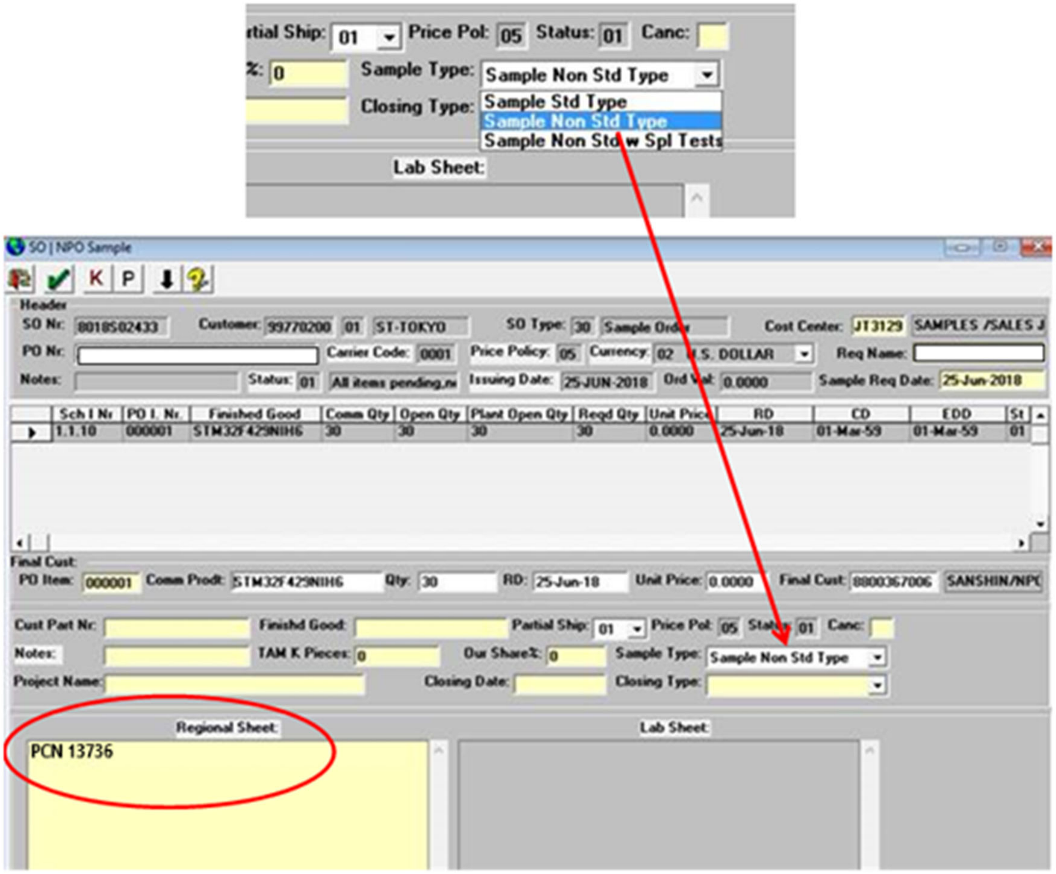
SS : a**S**sembly **S**ub-Lots enhanced traceability code

R : Additional Information (Die Version)

How to order samples?

For all samples request linked to this PCN, please:

- place a **Non-standard** sample order (choose Sample Non Std Type from pull down menu)
- insert the PCN number “**PCN13736**” into the NPO Electronic Sheet/**Regional Sheet**
- request sample(s) through Notice tool, indicating a single Commercial Product for each request



rtial Ship: 01 Price Pol: 05 Status: 01 Canc:

%: 0 Sample Type: Sample Non Std Type

Closing Type:

SO Nr: 8018S02433 Customer: 99770200 01 ST-TOKYO SO Type: 30 Sample Order Cost Center: JT3129 SAMPLES /SALES J

PO Nr: Carrier Code: 0001 Price Policy: 05 Currency: 02 U.S. DOLLAR Req Name:

Notes: Status: 01 All items pending,n Issuing Date: 25-JUN-2018 Ord Val: 0.0000 Sample Req Date: 25-Jun-2018

Sch l Nr	PO l. Nr.	Finished Good	Comm Qty	Open Qty	Plant Open Qty	Reqd Qty	Unit Price	RD	CD	EDD	St
1.1.10	000001	STM32F429NIH6	30	30	30	30	0.0000	25-Jun-18	01-Mar-59	01-Mar-59	01

PO Item: 000001 Comm Prodt: STM32F429NIH6 Qty: 30 RD: 25-Jun-18 Unit Price: 0.0000 Final Cust: 8800367006 SANSHIN/NPC

Cust Part Nr: Finishd Good: Partial Ship: 01 Price Pol: 05 Status: 01 Canc:

Notes: TAM K Pieces: 0 Our Share%: 0 Sample Type: Sample Non Std Type

Project Name: Closing Date: Closing Type:

Regional Sheet: PCN 13736

Lab Sheet:

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Public Products List

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PCN Title : SAMSUNG Foundry (South Korea) additional source for STM32H7Ax & STM32H7Bx 2MB listed products

PCN Reference : MDG/22/13736

Subject : Public Products List

Dear Customer,

Please find below the Standard Public Products List impacted by the change.

STM32H7A3IGT6	STM32H7A3ZGT6	STM32H7A3VGH6
STM32H7B3QIY6QTR	STM32H7A3NIH6	STM32H7A3NGH6
STM32H7A3IIK6Q	STM32H7B3VIT6Q	STM32H7A3QIY6QTR
STM32H7B3NIH6	STM32H7B3IIT6Q	STM32H7B3AII6Q
STM32H7B3VIT6	STM32H7A3IIT6Q	STM32H7A3ZIT6
STM32H7B3IIK6	STM32H7A3VIT6	STM32H7B0ZBT6
STM32H7A3RIT6	STM32H7A3VIT6Q	STM32H7A3VIH6Q
STM32H7A3AGI6Q	STM32H7B0IBT6	STM32H7A3RGT6
STM32H7B3LIH6Q	STM32H7B0ABI6Q	STM32H7A3IIT6
STM32H7A3VGT6	STM32H7A3LIH6Q	STM32H7B3VIH6Q
STM32H7B3VIH6	STM32H7A3IIK6	STM32H7B0IBK6Q
STM32H7A3IIK6QTR	STM32H7A3VIH6	STM32H7A3LGH6Q
STM32H7B0VBT6TR	STM32H7B3RIT6	STM32H7A3AII6Q
STM32H7B0VBT6	STM32H7B0RBT6	STM32H7B3IIK6Q
STM32H7A3RIT6TR	STM32H7B3ZIT6	STM32H7B3ZIT6Q
STM32H7A3ZIT6Q	STM32H7B3IIT6	STM32H7A3VGH6Q

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