PRODUCT/PROCESS CHANGE NOTIFICATION

PCN MMS-MIC/13/7747
Dated 18 Mar 2013

STM32F2x STM32F4x products -ST Crolles Wafer Fab

additional source in 12" wafers

Table 1. Change Implementation Schedule

Forecasted implementation date for change	26-Jun-2013
Forecasted availability date of samples for customer	15-Apr-2013
Forecasted date for **STMicroelectronics** change Qualification Plan results availability	27-May-2013
Estimated date of changed product first shipment	26-Jun-2013

Table 2. Change Identification

Product Identification (Product Family/Commercial Product)	STM32F2x, STM32F4x
Type of change	Waferfab additional location
Reason for change	Dual sourcing
Description of the change	Qualification of ST Crolles Wafer Fab (France) for STM32F2x and STM32F4x devices, as an additional wafer fab to insure double sourcing.
Change Product Identification	see in document below
Manufacturing Location(s)	

Table 3. List of Attachments

Customer Part numbers list	
Qualification Plan results	

Customer Acknowledgement of Receipt **PCN MMS-MIC/13/7747**

Please sign and return to STMicroelectronics Sales Office **Dated 18 Mar 2013**

☐ Qualification Plan Denied	Name:
☐ Qualification Plan Approved	Title:
	Company:
☐ Change Denied	Date:
☐ Change Approved	Signature:

Remark

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DOCUMENT APPROVAL

Name	Function
Colonna, Daniel	Marketing Manager
Buffa, Michel	Product Manager
Narche, Pascal	Q.A. Manager

PRODUCT/PROCESS CHANGE NOTIFICATION

STM32F2x STM32F4x products – ST Crolles Wafer Fab additional source in 12” wafers

MMS - Microcontrollers Division (MCD)

Dear Customer,

Committed to serving our customers, our teams operate with the constant objective to improve customer service through increased capacity and double-sourcing.

What is the change?

The change is the qualification of ST Crolles Wafer Fab (France) for STM32F2x and STM32F4x devices, as an additional wafer fab. Wafer size is changed from Rousset 8” wafers to Crolles 12” wafers. All datasheet parameters remain unchanged. There is no hardware or software change for customers.

Why?

The change will improve and secure service through capacity increased & double-sourcing.

When ?

The production will start in Crolles from **Week 26 2013** for STM32F2x products and **Week 38 2013** for STM32F4x products.

How will the change be qualified?

This change will be qualified using the standard STMicroelectronics Corporate Procedures for Quality and Reliability.
See Qualification plan attached at the end of this document.

What is the impact of the change?

- **Form:** no commercial product changed
- **Fit:** concerning die business, transfer from 8” wafers to 12” wafers
- **Function:** no change

How can the change be seen?

Traceability of the change is ensured by ST internal tools. The product revision identification is shown on the package marking as below:

STM32F2x	from "X" to "1"
STM32F4x	from "Z" or ”Y” to "1"

We remain available to discuss any concern that you may have regarding this Product Change Notification.

With our sincere regards.

Michel Buffa
Microcontroller Division General Manager

RELIABILITY PLAN

Qualification items :

CMOSM10 process in Crolles Waferfab 12”, STM32F4xx products transfer to Crolles Waferfab 12”

Diffusion Plant:	**CROLLES 12” waferfab**
Devices:	**STM32F2xx / STM32F4xx**
Issued on:	**Mar 08, 2013**

Purpose

- ✓ Qualification of the CMOSM10 process transfer to the 300mm wafer fab in Crolles.
- ✓ Qualification of products 413 & 419 (STM32F4xx) in 300mm Crollers waferfab.

Test Vehicles :

Device : **Die 411 (STM32F2xx)**
Dice 413 / 419 (STM32F4xx)

The CMOSM10 Technology Platform is qualified in CROLLES waferfab by a transfer from Rousset plant for additional sourcing.
The STM32F2xx is used a qualification vehicle. It was already used as qualification driver to validate CMOSM10 technology in Rousset Waferfab.
The chosen product code is STM32F207IGH6 assembled in UFBGA176 in AMKOR ATK4.

The STM32F4xx products, already in production in Rousset Waferfab are also transferred to Crolles Waferfab as additional source.

Based on these data and according to our “Reliability tests and criteria for qualifications” specification (ADCS 0061692), the following reliability strategy is:

- ➢ 3 qualification lots on 411/UFBGA176 used for reliability trials described in below table :
- ➢ 2 qualification lots on 413/UFBGA176 & 419/UFBGA216

DIE-ORIENTATED RELIABILITY TRIALS :

Reliability Trial		Test Conditions	Pass Criteria	Unit per Lot	Lot nb
ELFR	Early Life Failure Rate AEC-Q100-008	125°c, 4V	48h	**500**	**3 (411)** **1 (413)** **1 (419)**
HTOL	High Temperature Operating Life JESD22-A108	125°c, 4V	1200h	**77**	**3 (411)** **1 (413)** **1(419)**
EDR	Memory cycling endurance & Retention JESD22-A117	10Kcycles at 125°C + 672hrs bake 175°C	No reject	**77**	**3 (411)** **1 (413)** **1 (419)**
EDR	Memory cycling endurance & Retention JESD22-A117	10Kcycles at 25°C + 72hrs bake 175°C	No reject	**77**	**3 (411)** **1 (413)** **1 (419)**
EDR	Memory cycling endurance & Retention JESD22-A117	10Kcycles at -40°C + 72hrs bake 175°C	No reject	**77**	**3 (411)** **1 (413)** **1 (419)**
ESD	ESD Human Body Model AEC-Q100-002	2KV (except Vbat 1KV)	2KV	**3**	**1 (411)** **1 (413)** **1 (419)**
ESD	ESD Charge Device Model JESD22-C101	750V corners 500V all other pins	750V / 500V	**3**	**1 (411)** **1 (413)** **1 (419)**
LU	Latch Up EIA/JESD78	150°C	no LU	**6**	**1 (411)** **1 (413)** **1 (419)**

PACKAGE-ORIENTATED RELIABILITY TRIALS :

Reliability Trial		**Test Conditions**	**Pass Criteria**	**Unit per Lot**	**Lot nb**
PC	Pre Conditioning: Moisture Sensitivity Jedec J-STD-020/ JESD22-A113	Bake (125°C / 24 hrs) Soak (30°C / 60% RH / 192 hrs) for level 1, 3 passes of convection flow.	3 passes MSL3	**308** **308** **308**	**3 (411)** **1 (413)** **1(419)**
Uhast	Unbiased Higly Accelerated Temperature and Humidity Stress (Following PC) JESD22-A118A	130°C, 85% RH, 2 Atm	96h	**77** **77** **77**	**3 (411)** **1 (413)** **1(419)**
TC	Thermal Cycling (Following PC) JESD22 A104	-65°C, +150°C	500cy	**77** **77** **77**	**3 (411)** **1 (413)** **1(419)**
THB	Temperature Humidity Bias (Following PC) JESD22 A101	85°C, 85% RH, bias	1000h	**77** **77** **77**	**3 (411)** **1 (413)** **1(419)**
HTSL	High Temperature Storage Life (Following PC) JESD22 A103	150°C- no bias	1000h,	**77** **77** **77**	**3 (411)** **1 (413)** **1(419)**

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