



**Reports:**

Freescale 11/08-067-C  
R009 V1 R0  
Results of the ISO 26262  
Functional Safety  
Assessment

**Validity:**

This assessment is valid for  
Microcontroller MPC5643L

This assessment is valid  
until August 31, 2015.

V1 R1 September, 2012



# Certificate / Certificat Zertifikat / 合格証

FREESCALE 1108067 P0026 C001

*exida* Certification S.A. hereby confirms that the:

**MICROCONTROLLER MPC5643L**

**FREESCALE Halbleiter Deutschland  
GmbH  
Munich, Germany**

Has been assessed per the relevant requirements regarding  $\mu$ C  
development and verification & validation of:

**ISO 26262 : 2011 Parts 2, 4, 5, 7, 8, 9 and 10  
(to the extent applicable)**

and meets requirements providing:

**Systematic Integrity: ASIL D**

**Safety related function:**

The  $\mu$ C supports the execution of safety-related software by a  
dual-core lock-step architecture with memory protection and  
centralized fault collection and control unit.

**Application restrictions:**

The microcontroller shall be used per the Safety Application  
Guide requirements.



Evaluating Assessor

Certifying Assessor



# MICROCONTROLLER MPC5643L

## Systematic Integrity: ASIL D

Microcontroller  
MPC5643L

Freescale Halbleiter  
Deutschland GmbH

Munich, Germany

### Type Approval Certificate

This certificate is a Type Approval Certificate. It confirms the compliance of the development of the presented IC product with the listed standards. The production of the IC product is not subject to surveillance audits by *exida* Certification S.A.

The production processes / plans / documents in place at the date of the assessment allow ISO 26262-7 compliant production (when executed).

### Systematic Integrity: ASIL D

The  $\mu$ C MPC5643L is a Safety Element out of Context per ISO DIS 26262-10. The development as documented by Freescale has met the applicable ISO 26262-4, ISO 26262-5, ISO 26262-8 and ISO 26262-9 design and verification & validation requirements for Automotive Safety Integrity Level (ASIL) D applications as guided by ISO DIS 26262-10 and the functional safety management requirements per ISO 26262-2.

### Random Hardware Integrity

The FMEDAs performed by FREESCALE meet the verification requirements of ISO 26262-5 §8 and the requirements applicable to an IC SEooC of ISO 26262-5 §9.4.2 for ASIL D applications. The quantitative input to the FMEDA was based on FREESCALE field experience and statistics. Appropriate scaling factors according to ISO 26262-5 Annex F will have to be agreed with the future user.

### Structuring of the $\mu$ C and Safety (Integrity) Mechanisms

The  $\mu$ C has been structured into the processing part, I/O interface parts and communication parts.

#### Application independent parts

The processing part is monitored by the dual-core lockstep architecture and other application-independent safety (integrity) mechanisms implemented into the Hardware of the  $\mu$ C. The built-in safety (integrity) mechanisms require specific configurations and the support of external software and hardware safety (integrity) mechanisms specified in the Safety Application Guide. External hardware safety (integrity) mechanisms of particular importance are the monitored power supply and the time-window watchdog.

#### Application dependent parts

The used I/O interface parts and communication parts shall be monitored by application-dependent safety (integrity) mechanisms to be implemented by the application software and hardware configuration. Guidance on recommended application-dependent safety (integrity) mechanisms is given in the Safety Application Guide.

If the future user of the  $\mu$ C deviates from these assumed safety (integrity) mechanisms or configures the  $\mu$ C not as recommended then he shall seek advise of the  $\mu$ C manufacturer.



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Form	Version	Date
C26262	1.1	Aug 2012