

# EFM32LG290F256G-F-BGA112R Datasheet



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	EFM32LG290F256G-F-BGA112R-DG
Manufacturer	<a href="#">Silicon Labs</a>
Manufacturer Product Number	EFM32LG290F256G-F-BGA112R
Description	IC MCU 32BIT 256KB FLASH 112BGA
Detailed Description	ARM® Cortex®-M3 Leopard Gecko Microcontroller IC 32-Bit Single-Core 48MHz 256KB (256K x 8) FLASH 112-BGA (10x10)

This model EFM32LG290F256G-F-BGA112R is available at DiGi Electronics.

DiGi Electronics offers a global database of semiconductor and electronic component datasheets.

We welcome your inquiries regarding pricing, lead time, or other product-related questions.

 [Request a Quote](#)

 [Datasheet Search](#)



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

DiGi is a global authorized distributor of electronic components.

## Purchase and inquiry

Manufacturer Product Number:

EFM32LG290F256G-F-BGA112R

Series:

Leopard Gecko

DiGi-Electronics Programmable:

Not Verified

Core Size:

32-Bit Single-Core

Connectivity:

EBI/EMI, I2C, IrDA, SmartCard, SPI, UART/USART

Number of I/O:

90

Program Memory Type:

FLASH

RAM Size:

32K x 8

Data Converters:

A/D 8x12b SAR; D/A 2x12b

Operating Temperature:

-40°C ~ 85°C (TA)

Supplier Device Package:

112-BGA (10x10)

Base Product Number:

EFM32LG290

Manufacturer:

Silicon Labs

Product Status:

Active

Core Processor:

ARM® Cortex®-M3

Speed:

48MHz

Peripherals:

Brown-out Detect/Reset, DMA, I2S, POR, PWM, WDT

Program Memory Size:

256KB (256K x 8)

EEPROM Size:

-

Voltage - Supply (Vcc/Vdd):

1.98V ~ 3.8V

Oscillator Type:

Internal

Mounting Type:

Surface Mount

Package / Case:

112-LFBGA

## Environmental & Export classification

RoHS Status:

RoHS Compliant

ECCN:

5A992C

Moisture Sensitivity Level (MSL):

3 (168 Hours)

HTSUS:

8542.31.0001



# Silicon Labs Security Advisory

## A-00000442

**Subject:** Security Advisory for TrustZone Debug Access Permission bits cause TPIU access failure

**CVSS Severity:** Medium

**Base Score:** 4.6, Medium

**Temporal Score:** 4.4, Medium

**Vector String:** [CVSS:3.1/AV:P/AC:L/PR:N/UI:N/S:U/C:N/I:N/A:H/E:H/RL:O/RC:C](#)

### Impacted Products:

- Gecko MCUs such as EFX32 SOCs and associated modules using SE Firmware 1.2.13, 2.2.0 or earlier whose TrustZone Invasive Debug Lock (DBGLOCK) AND Non-Invasive Debug Lock (NIDLOCK) Bits are set

### Technical Summary:

- Due to an undocumented behavior in ARM Cortex-M33, setting the TrustZone Debug Access Permission (DAP) DBGLOCK AND NIDLOCK bits unexpectedly causes the M33 to stall when accessing the [Trace Port Interface Unit \(TPIU\)](#) due to a lack of clock input to the TPIU. As a result, the M33 becomes nonresponsive waiting on a ready signal from the peripheral.
- Customers that DO NOT manipulate the TPIU from within application code are **unaffected** by this defect.
- This is a defect in host processor clock integration and the SE or VSE are **unaffected** while the host processor is stalled waiting for access on the TPIU.
- TrustZone DAP bits can be set by either SE Mailbox or DCI interface, regardless of debug state and do not require authentication via Secure Debug challenge response. Once set, they cannot be unset again until the device is erased.
- Note that TrustZone DAP bits operate in addition to, and are not required by, Silicon Labs Secure Debug, and that setting DBGLOCK and NIDLOCK can be achieved regardless of Secure Debug Unlock state. However, be aware that certain configurations of SE Firmware prior to 1.2.14 and 2.2.1 allow a user to place their device into the affected configuration such that future TPIU access will cause the M33 to become nonresponsive.
- A potential malicious user with physical access may be able to latch a device in the nonresponsive state by setting DBGLOCK and NIDLOCK over an available debug interface. However, exploiting this behavior is impractical: attackers with physical access can simply destroy the chip itself to the same effect

<sup>1</sup> [silabs.com](#) | A-00000442 – Security Advisory for TrustZone Debug Access Permission bits cause TPIU Access Failure

*Notice: The contents of this Notification are provided exclusively for the internal use of the recipient in support of devices supplied by Silicon Labs and shall not be shared with or distributed to any third parties. This Notification shall not be posted on any blog, website, board or social media. The contents are for general information only and do not purport to be comprehensive. While Silicon Labs provides this information in good faith and makes every effort to supply correct, current and high-quality guidance, Silicon Labs provides all materials (including this document) solely on an “as is” basis without warranty of any kind. Silicon Labs disclaims all express and implied warranties. In no event shall Silicon Labs be liable for any damages whatsoever, including direct, indirect, incidental, consequential, lost profits or special damages related to or arising from the adequacy, accuracy, completeness or timeliness of this document or its contents, even if Silicon Labs has been advised of the possibility of such damages. Nothing in this Notice excludes any liability for death or personal injury caused by negligence, or for fraud or intentional misrepresentation. By accepting or using the information contained in this Notification, the recipient agrees to that this Notification and its use are governed by the laws of the State of Texas, excluding its conflicts of law’s provisions.*



#### Fix/Work Around:

- To avoid being affected by this defect, users should upgrade SE Firmware to versions 1.2.14 or later, or 2.2.1 or later, as soon as these firmware versions become available. **Note that as of this publication these versions may not yet be available**, but should be released in an upcoming GSDK release. For more details please contact [support](#).
- Note that TrustZone Support is in Beta for all Silicon Labs products at this time, and customers should avoid setting TrustZone DAP bits, especially DBGLOCK and NIDLOCK, prior to the 1.2.14 and 2.2.1 releases.
- If your solution requires TrustZone DAP Locks to be enabled, please contact Silicon Labs support for further guidance by filing a ticket via the support portal [link](#)
- Applications with TrustZone DAP Locks set can avoid this defect by avoiding TPIU access in application code. For example, the SWO Debug plugin in GSDK will cause this fault if the TrustZone DBGLOCK and NIDLOCK are set. To disable SWO Debug follow the steps below:
  1. Access your device's .slcp file
  2. Under "Software Components" access Platform>Driver>SWO Debug and click "Uninstall"
  3. Clean and Rebuild your project
- A device with Permanent Lock enabled (Device Erase is disabled), in the non-responsive state caused by this defect is NOT RECOVERABLE. If you plan on using TrustZone DAP, ensure your application does not access the TPIU:
  1. Familiarize yourself with ARM's [TPIU Programmer's Model](#), then search and disable any references to the TPIU—most typically the SWO—as described, above
- In the event Permanent Debug Lock is NOT enabled (Device Erase is enabled) and you believe setting TrustZone DAP bits, or TPIU access has caused your device to become nonresponsive, your device can be recovered by issuing a device erase command:

```
commander security erasedevice
```

#### Attribution:

- Discovered by Silicon Labs internal testing

Guidelines on our security vulnerability policy can be found at <https://www.silabs.com/security>  
 For Silicon Labs Technical Support visit: <https://www.silabs.com/support>

2 silabs.com | A-00000442 – Security Advisory for TrustZone Debug Access Permission bits cause TPIU Access Failure

*Notice: The contents of this Notification are provided exclusively for the internal use of the recipient in support of devices supplied by Silicon Labs and shall not be shared with or distributed to any third parties. This Notification shall not be posted on any blog, website, board or social media. The contents are for general information only and do not purport to be comprehensive. While Silicon Labs provides this information in good faith and makes every effort to supply correct, current and high-quality guidance, Silicon Labs provides all materials (including this document) solely on an "as is" basis without warranty of any kind. Silicon Labs disclaims all express and implied warranties. In no event shall Silicon Labs be liable for any damages whatsoever, including direct, indirect, incidental, consequential, lost profits or special damages related to or arising from the adequacy, accuracy, completeness or timeliness of this document or its contents, even if Silicon Labs has been advised of the possibility of such damages. Nothing in this Notice excludes any liability for death or personal injury caused by negligence, or for fraud or intentional misrepresentation. By accepting or using the information contained in this Notification, the recipient agrees to that this Notification and its use are governed by the laws of the State of Texas, excluding its conflicts of law's provisions.*

## OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we stricly control the quality of products and services. Welcome your RFQ to

Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

DiGi is a global authorized distributor of electronic components.