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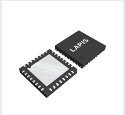
Package



View

ML62Q1365

Normal type ML62Q1300 Group ROM Capacity : 16KB to 64KB

ML62Q1300 Group is a high performance CMOS 16-bit microcontroller equipped with an 16-bit CPU nX-U16/100 and integrated with program memory(Flash memory), data memory(RAM), data Flash and rich peripheral functions such as the multiplier/divider, CRC operator, DMA controller, clock generator, timer, UART, synchronous serial port, I^{2}C bus interface unit,buzzer, Voltage Level Supervisor(VLS), successive approximation type A/D converter, D/A converter , analog comparator, safety function and etc.
The CPU nX-U16/100 is capable of efficient instruction execution in 1-intruction 1-clock mode by pipeline architecture parallel processing.
The built-in on-chip debug function enables debugging and programming the software. Also, ISP(In-System Programming) function supports the Flash programming in production line.
The ML62Q1300 Group has five packages (16pin - 32pin) and five kinds of memory sizes(16Kbyte - 64Kbyte).

DATA SHEET BUY

Documents Packaging & Quality FAQs Contact Us

Product Detail

Part Number| ML62Q1365 **Status**| Recommended **Package**| WQFN32/TQFP32 **RoHS**| Yes

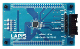
Product Longevity Program|
10 Years

SPECIFICATIONS:

Operating Voltage (Min.)[V]	1.6	☐	Operating Voltage (Max.)[V]	5.5	☐
ROM type	Flash	☐	ROM Capacity [Byte]	32K	☐
Data Flash Capacity [Byte]	2K	☐	RAM Capacity [Byte]	4K	☐
Input/Output	28	☐	Operating Frequency (Max.) High Speed	24MHz (PLL oscillation)	☐
Operating Frequency (Max.) Low Speed	32.768kHz (Internal RC oscillation)	☐	Minimum Instruction Execution Time	41ns / 30.5µs	☐
Current Consumption (Typ.@HALT)	4.3µA (Internal RC oscillation)	☐	Operating Temperature (Min.)[°C]	-40	☐
			Operating Temperature (Max.)[°C]	105	☐
Co-processor for Multiplication and Division	Yes	☐	16bit Timer	6 (8bit×12)	☐
16bit Multi Functions Timer	4 (TMR, PWM, IGBT, Capture)	☐	WDT	1	☐
			ADC (method)	10bit×8 (SA type)	☐
DAC	8bit×1	☐	I^{2}C	Master/Slave×1, Master ×1	☐
SSIO	UART Full Duplex/SSIO×2	☐	UART	UART Full Duplex/SSIO×2	☐
Supply Voltage Detection	VLS×1	☐	External Interrupt Sources	8	☐
Others	Safety function, Multiplier/Divider, Comparator×1, DMA	☐	Halogen Free Support	Yes	☐
			Industrial Grade	Yes	☐

FIND SIMILAR

Development Support



Reference Board

RB-D62Q1367TB32

Supply Status
Recommended
Board size (mm)
W56 × D94 × H15
Supported MCUs
- ML62Q1365
- ML62Q1366
- ML62Q1367(32PIN TQFP)

Structure
- ML62Q1367 (32PIN TQFP) Reference Board
- User's Manual

Supported emulator (sold separately)
- EASE1000
- EASE1000 V2

Notes
ML62Q1367 Reference Board(32PIN TQFP)

User's Guide
Buy

Starter kit

SK-AD01-D62Q1367TB

Supply Status
Recommended
Supported MCUs
- ML62Q1300 Group

Structure
- Appreciation board for ML62Q1367(64KB,64TQFP) /On-Chip emulator : EASE1000 V2/Development environment setup DVD : U8/U16 Development Tools, Touch sensor sample program, DTMF sample program,IrDA interface sample program
  Others : Speaker, interface cable, USB cable
  *DTMF : Dual Tone Multi Frequency

Notes
This starter kit includes Rohm Capacitive Switch Controller IC (BU21079F) on ML62Q1367 Capacitive Switch Application Board, Touch sensor sample program and IrDA interface sample program.You can evaluate Capacitive Switch control, DTMF Tone Generator and IrDA interface control use ML62Q1300 microcontroller easily.

User's Guide
Buy

Emulator

EASE1000 V2

Supply Status
Recommended
Board size (mm)
W90 × D50 × H17
Supported MCUs
- U8 / U16 microcontroler with on-chip debug function

Structure

User's Guide
Buy

- EASE1000 V2
- EASE1000 V2 Interface cable
- USB cable
- U8/U16 Development Tools(DVD-ROM)

Notes
Operating voltage (VDD) range of target microcontroller is from 1.55V to 5.5V

Emulator

EASE1000

User's Guide

Buy

Supply Status
Obsolete
Board size (mm)
W90 × D50 × H17
Supported MCUs
- ML62Q1000 series

Structure
- EASE1000
- EASE1000 interface cable
- USB cable
- U8 Development Tools (CD-ROM)

Notes
Operating voltage (VDD) range of target microcontroller is from 1.55V to 5.5V

⚠ last-buy and migration Notification

Design Resources

List View

Search:

Documents

Type	Title	Last Updated
User's Guide	ML62Q1000 Series User's Manual	2023/01/10
Data Sheet	ML62Q1365 Data Sheet	2022/05/19
Application Note	About The Product Name	2023/08/07
Application Note	ML62Q1000 Series Restriction of Function and Performance/Usage Note	2020/09/16
Application Note	MCU Related Document list	2023/04/17

Packaging & Quality

Type	Title	Last Updated
Package Information	Package Mounting Related Documents (P-TQFP32-0707-0.80-ZK6)	2021/10/14
Package Information	Package Mounting Related Documents (P-WQFN32-0505-0.50-A63)	2021/11/02
Environmental Data	Environmental Data (P-TQFP32-0707-0.80-ZK6)	2021/11/12
Environmental Data	Environmental Data (P-WQFN32-0505-0.50-A63)	2021/11/08

Support Contents

Title	Revision	Description	Last Updated
Software: LAPIS Development Tools LEXIDE-Ω	1.0.0	LAPIS Development Tools LEXIDE-Ω is the application program developing environment for LAPIS Technology 8-bit RISC processors based on the nX-U8/100 core or 16-bit RISC processors based on the nX-U16/100 core, and for LAPIS Technology microcontrollers based on the Arm® Cortex®-M0+ core. LAPIS Development Tools LEXIDE-Ω V1.0.0 has the following features, ・ ISO/IEC 9899:1999(C99) Support for standards. ・ Added LAPIS Arm LLVM Toolchain. ・ Added P-RTLU16, a reduced size library. ・ Real-time debug function (for the nX-U8/100 core and the nX-U16/100 core) ・ Support Windows 11 64-bit (x64) See the realese notes for details, Notes: ・When using this version, please update the firmware for EASE1000/EASE1000 V2 to Ver.2.20 or later. About OSS: ・LEXIDE-Ω use GDB, OpenOCD, and libwdi library. ・LCC-U16 Compiler and LCC-Arm Compiler use LLVM. ・Newlib and Picolibc are used as the standard library for the C99 standard provided by LCC-U16 Compiler and LCC-Arm Compiler. ・For each license, it is described in the files in the following folders: "(Installation folder)\Licenses\LEXIDE\"	2023/03/24
Software: LAPIS Development Tools LEXIDE-Ω (Realese note)	1.0.0		2023/03/24
Software: LAPIS Development Tools LEXIDE-Ω GDB for U16 source file	1.0.0	OSS source code file	2023/03/24
Software: LAPIS Development Tools LEXIDE-Ω OpenOCD for U16 source file	1.0.0	OSS source code file	2023/03/24
Software: LAPIS Development Tools LEXIDE-Ω Driver replacement tool (Libwdi library) source file	1.0.0	OSS source code file	2023/03/24
Software: LAPIS Development Tools LEXIDE-Ω OpenOCD for LAPIS Arm source file	1.0.0	OSS source code file	2023/03/24
Software: LAPIS Development Tools LEXIDE-Ω QEMU for LAPIS Arm source file	1.0.0	OSS source code file	2023/03/24
Software : LCC-U16 Compiler V1.10 Errata	1	LAPIS Development Tools LEXIDE-Ω V0.9.0 inclueded LCC-U16 Compiler V1.10 Errata	2023/01/11
Software : LCC-U16 Compiler V1.10 Errata(No.1) Attached Modified Library	1.10	LAPIS Development Tools LEXIDE-Ω V0.9.0 included LCC-U16 Compiler V1.10 Errata (No.1) Attached Modiried Library.	2023/01/11
Software : LAPIS Development Tools LEXIDE-Ω	0.9.0	Old version of LAPIS Development Tools LEXIDE-Ω. U8/U16 Development Tools has changed to LAPIS Development Tools LEXIDE-Ω. In LEXIDE-Ω, debugging functions such as graphing of real-time watches have been improved, and added LLVM-based LCC-U16 Compiler V1.10. LCC-U16 Compiler V1.10 supports ISO/IEC 9899:1999 (C99) of C language, and long long type can be used for software development. The same CCU8 and DTU8 as U8/U16 Development Tools R2.4.2 are available for LAPIS Development Tools LEXIDE-Ω. LEXIDE-Ω provide improved debugging capabilities. Note: Please use [U8/U16 CCU8 Toolchain] and [U8/U16 LLVM Toolchain (LAPIS OMF)] toolchains. Please do not select the "U8/U16 LLVM Toolchain (ELF) " toolchain, but it will be added in the future. About OSS : LEXIDE-Ω use GDB, OpenOCD, libwdi library. LCC-U16 Compiler uses LLVM. Newlib is used as the standard library for the C99 standard provided by this software.	2022/11/24

			For each license, it is described in the files in the following folders: ・"（Installation folder）\Licenses\LEXIDE\gdb" ※GDB license file ・"（Installation folder）\Licenses\LEXIDE\openocd" ※OpenOCD license file ・"（Installation folder）\Licenses\LEXIDE\libwdi" ※libwdi license file ・"（Installation folder）\Licenses\LEXIDE\BuildTools\（Version folder）" ※LLVM, Newlib license file Please read it before use.	
🔒	Software : LAPIS Development Tools LEXIDE-Ω GDB source file	0.9.0	OSS source code file	2022/11/24
🔒	Software : LAPIS Development Tools LEXIDE-Ω OpenOCD source file	0.9.0	OSS source code file	2022/11/24
🔒	Software : LAPIS Development Tools LEXIDE-Ω Driver replacement tool（libwdi library）source file	0.9.0	OSS source code file	2022/11/24
🔒	Software : U8/U16 Development Tools	2.4.2	U8/U16 Development Tools is the application program developing environment for LAPIS Technology 8-bit RISC processors based on the nX-U8/100 core and 16-bit RISC processors based on the nX-U16/100 core. Project manage tool, Build tool, Support tools for LCD Control, Flash programming tools（MWU16）,ROM Code Generator Tool for Code Entry, are included in this package. Eclipse-based new integrated development environment LEXIDE-U16 has been added. The default install folder has been changed to ""C:\U8Dev"" from ""C:\Program Files\U8Dev""Be sure to update with the EASE1000/EASE1000 V2 firmware file Ver.2.20 before use. Please download the file from ""Hardware : On-chip Emulator EASE1000 EASE1000 V2 Firmware"" on this page. [For customers using ML62Q1729/Q1739/Q1749,ML62Q1859/Q1869/Q1879] If the device information files for ML62Q1729/Q1739/Q1749,ML62Q1859/Q1869/Q1879 are used by the MWU16 V1.12 or older version, "Save Memory" function does not work properly. Be sure to use the MWU16 V1.13 or later version.	2022/04/15
🔒	Software : U8/U16 Development Tools（Release note）	2.4.2		2022/04/15
🔒	Software : U8/U16 Development Tools	3.0.0	Old version of U8/U16 Development Tools. U8 / U16 Development Tools R3.0.0 added LEXIDE C compiler Ver.1.00 based on LLVM. The LEXIDE C compiler supports the ISO / IEC 9899: 1999 (C99) standard. This makes it possible to efficiently port the source code written in C99. (In U8 / U16 Development Tools R3.0.0, the conventional CCU8 compiler can still be used.) Supported OS: Windows10 64bit LLVM is copyrighted by the University of Illinois at Urbana-Champaign. Regarding the license, U16 / U8 Development Tools installation folder "(installation folder) \ BuildTools \ (version folder) \ Licenses" Since it is described in the text file in, please see it before use.	2022/01/14
🔒	Software : U8/U16 Development Tools（Release note）	3.0.0		2022/01/14
🔒	Software : U8/U16 Development Tools	2.4.1	Old version of U8/U16 Development Tools.	2021/08/20
🔒	Software : U8/U16 Development Tools（Release note）	2.4.1		2021/08/20
🔒	Software : U8/U16 Development Tools	2.3.0	Old version of U8/U16 Development Tools.	2021/01/25
🔒	Software : U8/U16 Development Tools（Release note）	2.3.0		2021/01/25
🔒	Software : U8/U16 Development Tools	2.2.1a	Old version of U8/U16 Development Tools.	2020/07/28
🔒	Software : U8/U16 Development Tools（Release note）	2.2.1a		2020/07/28
🔒	Software : CCU8 Compiler Errata（V3.65）	2.2.1a		2020/07/28
🔒	Software : HTU8 HEX Converter Errata（V2.20）	2.2.1a		2019/03/20
🔒	Software : U8/U16 Development Tools	2.1.1	Old version of U8/U16 Development Tools.	2020/01/27
🔒	Software : U8/U16 Development Tools（Release note）	2.1.1		2020/01/27
🔒	Software : CCU8 Compiler Errata（V3.64）	2.1.1		2020/02/28
🔒	Software : U8/U16 Development Tools	2.1.0	Old version of U8/U16 Development Tools.	2019/09/20
🔒	Software : U8/U16 Development Tools（Release note）	2.1.0		2019/09/20
🔒	Software : U8/U16 Development Tools（Split Download1）	2.0.0	Old version of U8/U16 Development Tools.	2019/02/01
🔒	Software : U8/U16 Development Tools（Split Download2）	2.0.0		2019/02/01
🔒	Software : U8/U16 Development Tools（Split Download3）	2.0.0		2019/02/01
🔒	Software : U8/U16 Development Tools（Batch File）	2.0.0		2019/02/01
🔒	Software : U8/U16 Development Tools（Release note）	2.0.0		2019/02/01
🔒	Software : Notes on CCU8 Compiler Errata	2.0.0		2019/07/08
🔒	Software : Notes on Command-line Errata	2.0.0		2019/03/18
🔒	Software : HTU8 HEX Converter Errata	2.0.0		2020/07/28
🔒	Software : DTU8 HEX Converter Errata	2.0.0		2019/06/07

🔒	Software : U8/U16 Development Tools	1.16.2	Old version of U8/U16 Development Tools.	2018/07/20
🔒	Software : U8/U16 Development Tools（Release note）	1.16.2		2018/07/20
🔒	Software : U8/U16 Development Tools	1.16.1	Old version of U8/U16 Development Tools.	2018/02/14
🔒	Software : U8/U16 Development Tools（Release note）	1.16.1		2018/02/14
🔒	Software： MultipleFlash Writer MWU16 (Notes)	1.16.1		2018/03/09
🔒	Software : U8/U16 Development Tools	1.15.5	Old version of U8/U16 Development Tools.	2017/09/01
🔒	Software : U8/U16 Development Tools（Release note）	1.15.5		2017/09/01
🔒	Software : U8/U16 Development Tools	1.15.4	Old version of U8/U16 Development Tools.	2017/05/29
🔒	Software : U8/U16 Development Tools（Release note）	1.15.4		2017/05/29
🔒	Software : U8/U16 Development Tools	1.15.3	Old version of U8/U16 Development Tools.	2017/03/24
🔒	Software : U8/U16 Development Tools（Release note）	1.15.3		2017/03/24
🔒	Software : U8/U16 Development Tools	1.15.1	Old version of U8/U16 Development Tools.	2017/01/10
🔒	Software : U8/U16 Development Tools（Release note）	1.15.1		2017/01/10
🔒	Software : FlashMultiple-Writer MWU16	1.23	We released the MWU16 multi-writer supports flash programming by EASE1000/uEASE. FWuEASE writer and MWuEASE multi-writer are integrated to MWU16 multi-writer. Device information files and USB driver are required to install when using the Flash Multi-writer MWU16. If you want to install MWU16 by itself without installing U8/U16 Development Tools, also install the following device information files and USB driver. If using the FWuEASE and MWuEASE, please install and use the following installers. -Software : FlashMultiple-Writer MWuEASE（V2.20） -Software : U8/U16 Development Tools（V1.15.5）	2022/04/15
🔒	Software : FlashMultiple-Writer MWU16（Device Infomation File Installer）	3.25	This installer is included in U8/U16 Development Tools package. When installing MWU16 by itself, also install this device information files.	2022/04/15
🔒	Software : FlashMultiple-Writer MWU16（USB Driver Installer）	1.03.1	This installer is included in U8/U16 Development Tools package. When installing MWU16 by itself, also install this USB driver. Install the USB driver according to the OS （32bits/64bits）. -USB driver installer（32bits）：SetupDriver_x86.exe -USB driver installer（64bits）：SetupDriver_x64.exe	2021/01/25
🔒	Software : FlashMultiple-Writer MWU16	1.21	This is an old version of the flash multi-writer MWU16.	2021/08/20
🔒	Software : FlashMultiple-Writer MWU16	1.13	This is an old version of the flash multi-writer MWU16.	2019/10/01
🔒	Hardware : On-chip Emulator EASE1000 EASE1000 V2 Firmware	2.20	This software is the firmware for On-chip Emulator EASE1000/EASE1000 V2. Update of this firmware is possible by using DTU8 debugger. For details, please refer to "12.7 Firmware update function" of the "DTU8 debugger User's manual."	2021/07/12
🔒	Software : IDEU8（Old integrated development environment）	1.90	In U8 / U16 Development Tools R2.4.1 or later, IDEU8 has been removed from the package. If you are using IDEU8, please install this. To uninstall, select the following program from [Windows Settings]> [Apps] and delete it. "LAPIS Technology IDEU8" If you install an additional toolchain to use for the build, IDEU8 will build with the last installed version of the toolchain. For example, if the last installed toolchain is V2_04_01, it will be built with the V2_04_01 toolchain. To change the build tool chain for using, set [CCU8 Path], [MACU8 Path], [System Include Path], [System Library Path] of the using build tool path from IDEU8's File menu [Environment settings] > [System Path]. Please see the IDEU8 User's Manual for details.	2011/10/01
🔒	Development Support Tools : LAPIS Code Generation Tools	3.2.1	This software tool is a Code Generation Tools for microcontrollers. It can customize startup file and generate initialization code of peripheral. Use in an environment with U8/U16 Development Tools R2.4.2 or later installed. This software includes a code generation tool for the ML62Q1000 series of Revision 2.4.0. Support LSI : ML62Q2000 series/ML62Q1000 series Support OS : Windows 10 64bit and Windows 11	2023/07/14
🔒	Development Support Tools : LAPIS Code Generation Tools （Release note）	3.2.1		2023/07/14
🔒	Development Support Tools : Startup Configuration Tool User's Manual	3.2.1		2023/06/05
🔒	Development Support Tools : Peripheral Configuration Tool User's Manual	3.2.1		2023/06/05
🔒	Development Support Tools : LAPIS CodeGeneration Tools Limitations	3.2.1	This document describes limitations of LAPIS Code Generation Tools.	2023/06/05
🔒	Development Support Tools : ML62Q1000 Series LAPIS Code Generation Tools	2.4.0	This software is a Code Generation Tools for the ML62Q1000 series. Device information files are required to use the this software tool. Please install the device information files by using the installer included in the "U8/U16 Development Tools" package. Support LSI : ML62Q1000 series Support OS : Windows 10 64bit	2020/10/22
🔒	Development Support Tools : ML62Q1000 Series LAPIS Code Generation Tools （Release note）	2.4.0		2020/10/22
🔒	Development Support Tools : ML62Q1000 Series LAPIS Code Generation Tools （Notes）	2.4.0		2020/10/22
🔒	Sample Program : ML62Q1000 Series Reference Software	5.60	This software is peripheral driver and sample program of ML62Q1000 series. LAPIS Code Generation Tools use it easy to change each setting in the sample program.	2023/02/08
🔒	Sample Program : ML62Q1000 Series Reference Software （Release note）	5.60	This document describes changes and precautions for the ML62Q1000 series reference software.	2023/02/08
🔒	Sample Program : ML62Q1000 Series Reference Software (Readme)	5.60	This document describes the package configuration of the ML62Q1000 series reference software.	2023/02/08
🔒	Sample Program : ML62Q1000 Series Reference Software	4.50	This software is various sample peripheral drivers of the microcontroller necessary for customer's system control. and also includes ML62Q1000 Series Data Flash Driver （Simple version）. This software is applied for ML62Q1200A/Q1400/Q1600/Q1300/Q1500/Q1700/Q1500C/Q1700C.	2019/11/07
🔒	Sample Program : ML62Q1000 Series Reference Software （Release note）	4.50	This document describes changes and precautions for the ML62Q1000 series reference software.	2019/11/07
🔒	Sample Program : ML62Q1000 Series Reference Software (Readme)	4.50	This document describes the package configuration of the ML62Q1000 series reference software.	2019/11/07
🔒	Sample Program : ML62Q1000 Series Reference Software （Notes）	4.50		2019/11/07
🔒	Sample Program : ML62Q1000 Series Self Test Sample Software	1.50	This software is self-test sample program to support compliance with IEC / UL 60730-1 and IEC 60335-1. Support IEC 60730-1 Annex H Software class B.	2020/10/08

🔒 Sample Program : ML62Q1000 Series Self Test Sample Software （Release note）	1.50		2020/10/08
🔒 Sample Program : ML62Q1000 Series Self Test Sample Software Limitations	1.50	This document describes the limitations of the ML62Q1000 series Self Test Sample Software.	2023/02/01
🔒 AP Note : ML62Q1000 Series Software Development Environment Tutorial (IDEU8 edition)	4	IDEU8 is not included in the U8 / U16 Development Tools Release 2.4.1 or later release package. For customers using the latest release package, please refer to ""ML62Q1000 series Software Development Environment Tutorial (LEXIDE-U16 edition)"". This document is a tutorial of the software development environment for ML62Q1000 series when using the IDEU8. By reading this document, you can learn how to use each tool of the development environment. The tutorial uses ML62Q1577 as an example for making some simple programs and running it on the actual device to get better understanding. This document assumes using the following tools and software. Prepare about the following. - U8/U16 Development Tools. - ML62Q1000 series LAPIS Code Generation Tools. - ML62Q1000 series Reference software. - EASE1000 or EASE100j0 V2. - Reference board equipped with the ML62Q1000 series microcontroller. * The versions of the tools and software described in this document were used at the time this document was created. For this reason, the GUI and folder / file structure may differ depending on the version of the tool or software you are using. In that case, please refer to the release notes and manuals of the corresponding tool or software and replace them.	2021/08/25
🔒 AP Note : ML62Q1000 Series Software Development Environment Tutorial (LEXIDE-Ω edition)	4	This document is a tutorial of the software development environment for ML62Q1000 series when using the LEXIDE-Ω. By reading this document, you can learn how to use each tool of the development environment. The tutorial uses ML62Q1577 as an example for making some simple programs and running it onthe actual device to get better understanding.This document assumes using the following tools and software. Prepare about the following. -LAPIS Development Tools LEXIDE-Ω. - ML62Q1000 series LAPIS Code Generation Tools. - ML62Q1000 series Reference software. - EASE1000 V2. - Reference board equipped with the ML62Q1000 series microcontroller. * The versions of the tools and software described in this document were used at the time this document was created. For this reason, the GUI and folder / file structure may differ depending on the version of the tool or software you are using. In that case, please refer to the release notes and manuals of the corresponding tool or software and replace them.	2023/03/31
🔒 AP Note : How to import IDEU8 project to LEXIDE-U16	1	This document describes a procedure of importing the IDEU8 project of the sample program included in the ML62Q1000 series reference software Ver.5.2 using the LEXIDE-U16.* The versions of the tools and software described in this document were used at the time this document was created.　For this reason, the GUI and folder / file structure may differ depending　on the version of the tool or software you are using.　In that case, please refer to the release notes and manuals of the corresponding tool or software and replace them.	2019/12/16
🔒 AP Note : How to debug IAP Program	1	This document describes how to debug a HEX file that combines an IAP program and a user program into one.	2022/05/18
🔒 AP Note : How to Allocate Functions and Variables to Specific Areas	2	This document describes how to allocate functions and variables to specific areas. Please refer to this document when you want to realize the following. - Allocating functions and variables to specific areas. - Allocating a stack area to a specific area.- Allocating functions and variables in the order described in the source files. - Keeping allocation address unchanged even if function names or variable names are changed.	2022/03/25
🔒 AP Note : 8/16 bit microcontroller Application Note Soft Measures for Fail-Safe Design	3	This document describes the concept and countermeasures for safety measures when designing software.	2022/03/14
🔒 AP Note : Precautions for MCU board design	4	This document describes points to note when designing a board on which MCU is mounted.	2022/03/18
🔒 AP Note : Model-independent library file creation method	1	This document describes how to create a library that does not depend on the model. When using this document, download and use the "AP Note : Model-independent library file creation method （Library） ".Creating a library according to the method described in this document allows you to use it without limiting it to a specific model. Note that since the library creation method described in this document uses a device information file without SFR information, programs using peripheral cannot be created as a library that does not depend on the model. Please note in advance.	2019/07/25
🔒 AP Note : Model-independent library file creation method (Library)	1	This document describes how to create a library that does not depend on the model. When using this document, download and use the DevInf_for_Lib_v100.zip.Creating a library according to the method described in this document allows you to use it without limiting it to a specific model. Note that since the library creation method described in this document uses a device information file without SFR information, programs using peripheral cannot be created as a library that does not depend on the model. Please note in advance.	2019/07/25
🔒 AP Note : How to match ROM code created by IDEU8 and LEXIDE-U16	1	This document describes how to match the contents of the ROM code data of IDEU8 and LEXIDE-U16when migration from IDEU8 to LEXIDE-U16.	2022/01/12
🔒 AP Note : How to use the Unused ROM Area Access Reset Function	1	For the ML62Q1000 Series microcontrollers, we recommend occurring a watchdog timer (WDT) reset by an infinite loop as a countermeasure when some abnormality occurs. However, depending on the system, WDT may not be used, In that case, the method of using the unused ROM area access rest function is shown in this manual.	2021/03/24
🔒 AP Note : ML62Q1000 Series Tjmax calculation method	1	This application note shows how to calculate the chip temperature （junction temperature Tjmax） of ML62Q1000 series.	2021/02/24
🔒 AP Note : How to use Map file	1	This document describes the way of using the map file. Please refer to this document when you want to confirm the following. -Checking the used size of ROM/RAM -Checking the address of functions and variables -Checking the size of each function -Checking the size and address of the stack area.	2020/03/13
🔒 AP Note : Operation-confirmed oscillator for ML62Q1000 Series	3	This document describes the product names of the 32.768kHz oscillators that have been confirmed to work with the ML62Q1000 series and their oscillation circuit constants （reference value）.	2020/03/19
🔒 AP Note : ML62Q1000 Series Reset operation using power-on reset and voltage level monitoring function	3	This document describes the power-on reset （POR） and the reset operation using voltage level monitoring function （VLS: Voltage Level Supervisor） in the ML62Q1000 series as a method to enable the microcontroller to start up stably when the power supply fluctuates.	2020/08/24
🔒 AP Note : Start-up file	2	This document describes the contents to be helpful when customizing the startup file of the ML62Q1000 series.	2020/03/18
🔒 AP Note : Internal Pull-up/Pull-down Resistance Value.	3	This document describes internal the pull-up/pull-down resistor value in the microcontroller ports. The contents are applicable to following Lapis Technology 8/16/32 bit microcontrollers. ML610Q100，ML610Q300、ML620Q100，ML620Q500，ML630Q400，ML62Q1000 Series.	2020/03/19
🔒 AP Note : Note on Successive Approximation Type A/D Converter	4	This document describes notes on the successive approximation type A/D converter （SA-ADC）.The contents are applicable to following ML62Q1000 Series.	2021/12/27
🔒 AP Note : Definition of Errors of Successive Approximation Type A/D Converter	1	This document describes the definition of error for the successive approximation type A/D converter.	2018/08/21
🔒 AP Note : How to output data in data flash area to file	1	This document describes how to output data in data flash area to file with DTU8 debugger.	2018/12/07
🔒 AP Note : Initializing Data Flash Area	2	This document describes how to set an initial data in the data flash area.	2023/01/13
🔒 AP Note : Half Precision Floating Point float（16bit） Conversion.	1	This document describes about sample program that converts half precision floating point float (16 bits) into 32 bits float variable.	2018/08/21
🔒 AP Note : Code Size Compression Guide	4	This document describes how to set the option to minimize the output code when using the CCU8 compiler for U8/U16 and how to write C language so that the compiler can output efficient code.	2016/01/15
🔒 AP Note : ML62Q1000 Series Precautions when changing to memory-size increase product	2	This document describes the precautions to be taken when changing to product with increased ML62Q1000 series memory-size.	2020/03/19
🔒 AP Note : Notices for porting ML62Q1200/1400/1600 Group to ML62Q1300/1500/1700/1800 Group	4	This document describes items that need the software modification and restrictions when porting ML62Q1200/1400/1600G codes to ML62Q1300/1500/1700/1800G.	2021/05/31

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