

TICS Pro

EVM GUI for CDC, LMK, and LMX Timing Devices

Release Notes



Rev. 1.7.5.7
28-Feb-2023

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Release Notes

TICS Pro Release 1.7.5.7

1 Overview

This document is the Release Notes for Release 1.7.5.7 of the TICS Pro Software. This software release gives list of features/known issues of every release. Please refer to the *Getting Started Guide* chapter in the *User Guide* on how to install the TICS Pro Software.

2 Licensing

Please refer to the software manifest which outlines the licensing status for all packages included in this release.

3 Documentation

- **TICS Pro GUI Users Guide:** Provides information on features, functions of different pages of the GUI.
- **Software Manifest:** Provides license information on software included in the release.

4 Device Support

The devices supported with this release include (new devices are bolded):

Supported Devices
CDCI6214
CDCE6214-Q1
CDCDB800
CDCDB2000
CDCM6208V1/1F/2/2G
LMK01000/10/20
LMK01801B
LMK02000/02
LMK03000C/01C/02C/33C
LMK03200
LMK03318/28
LMK03806B
LMK04000B/01B/02B/10B/11B/31B/33B
LMK04100/01/02/10/11/31/33

LMK04208
LMK04228
LMK04610/16
LMK04803B/05B/06B/08B/16B
LMK04821/26B/28B
LMK04832
LMK04832-SP
LMK04906B
LMK05028
LMK05318
LMK05318B
LMK1D1208I
LMK5B12204
LMK5B33216
LMK5B33414
LMK5C33216
LMK61E0M
LMX1204
LMX2492
LMX2485
LMX2485E
LMX2485Q-Q1
LMX2486
LMX2487
LMX2487E
LMX2491
LMX2531LQ1146E
LMX2531LQ1226E
LMX2531LQ1312E
LMX2531LQ1415E
LMX2531LQ1500E
LMX2531LQ1515E
LMX2531LQ1570E
LMX2531LQ1650E
LMX2531LQ1700E
LMX2531LQ1742
LMX2531LQ1742E
LMX2531LQ1778E
LMX2531LQ1910E
LMX2531LQ2080E
LMX2531LQ2265E
LMX2531LQ2570E

LMX2531LQ2820E
LMX2531LQ3010E
LMX2541SQ2060E
LMX2541SQ2380E
LMX2541SQ2690E
LMX2541SQ3030E
LMX2541SQ3320E
LMX2541SQ3740E
LMX2571
LMX2571EP
LMX2572
LMX2572LP
LMX2581
LMX2582/92
LMX2594/95
LMX2615
LMX2694
LMX2820
LMX8410L

5 Supported Features

5.1 Version 1.0.0.0

1. First release

5.2 Version 1.1.0.0

- Added LMX2581.
- Updated LMX2582/92 device profiles.
- Added support for future devices.

5.3 Version 1.2.0.0

- Added LMK04826B and LMK04828B device profiles.
- Added LMX2541 device profile.
- Added LMX2492 device profile.
- Added LMK03328 device profile.
- Bug fixes including
 - USB2ANY attachment/removal.
 - PLL page phase detector polarity toggle crash

5.4 Version 1.3.0.0

- Added LMK04208.
- Bug fixes for future device release.

5.5 Version 1.4.0.0

- Added LMK04906, LMX2531 Family, LMX2541 Family, LMX248x Family, LMX2571, LMX2491
- Fixed LMK04208 to double write R0 to R5 when required for extra 3 SPI clocks. Refer to datasheet for detailed programming info. Pins restore to proper state on setting Default Configuration. Read back all registers fixed.
- Bug fixes for future device release.

5.6 Version 1.5.0.0

- Added LMK010x0 Family, LMK01801B, LMK030xxC Family, LMK03806B, LMK040xxB Family, LMK04100 Family, LMK0480xB Family, and LMK04816B.
- LMK04826B/28B updated with more set modes and bug fixes.
- Bug fixes
 - Minor bug fixes to support newly released devices.
 - Burst mode reflects updated values in GUI, not just Raw Registers.

5.7 Version 1.6.0.0

- Added jumper diagram for USB2ANY-uWIRE board in "Communication Setup" window for many devices which require it.
- Added LMK0200x Family, LMK04821.
- Updates/bug fixes to LMK04826/LMK04828, LMK03806B, LMK03000.
- Added communications window help for jumper settings for devices using USB2ANY-uWIRE.
- Removed part profile LMX2485Q, LMX2485Q-Q1 should be used.

- Bug fixes – internal code update

5.8 Version 1.6.1.0

- Added LMK61E0M.

5.9 Version 1.6.2.0

- Added LMK04610.

5.10 Version 1.6.3.0

- Added LMX2594

5.11 Version 1.6.4.0

- Added LMK04616

5.12 Version 1.6.5.0

- Added PLL2 loop filter calculation LMK04610, LMK04616

5.13 Version 1.6.5.0, 30-Jun-2017

- Added LMX2595, CDCI6214

5.14 Version 1.6.5.0, 14-Jul-2017

- Added PLMK04832
- Correct LMX2595 channel divider calculation

5.15 Version 1.6.5.0, 16-Aug-2017

- Added LMX2572

5.16 Version 1.6.6.0, 03-Oct-2017

- Update CDCI6214

5.17 Version 1.6.6.0, 30-Oct-2017

- Update CDCI6214
- Update LMX2572

5.18 Version 1.6.7.0, 04-Jan-2018

- Add LMK04832

5.19 Version 1.6.7.0, 27-Feb-2018

- Updated LMX2581, LMX2582, LMX2592, LMX2594, LMX2595
- Added CDC device drivers
- Added CDCM6208V1, CDCM6208V1F, CDCM6208V2, CDCM6208V2G

5.20 Version 1.6.8.0, 12-Apr-2018

- Added LMK05028 in Network Synchronizer Clock Device group

5.21 Version 1.6.8.0, 7-May-2018

- Added LMX2572LP and LMK03318
- Updated LMX8410L

5.22 Version 1.6.8.0, 7-Jun-2018

- Added LMK05318

5.23 Version 1.6.8.0, 8-Aug-2018

- Bug fix for LMK03328. Corrected proper frequency calculations after loading saved TCS files. Updated register default values.
- Bug fix for LMK04610. Corrected calculated PLL1 divider frequency outputs.

5.24 Version 1.6.8.0, 21-Aug-2018

- Added LMX2615

5.25 Version 1.6.8.0, 15-Nov-2018

- Updated LMX2615, LMX8410L
- Bug fix for LMX2571

5.26 Version 1.6.9.0, 11-Dec-2018

- Updated LMK05318: Release.
- Updated LMK03318: fixed I2C address

5.27 Version 1.6.10.0, 16-May-2019

- Updated LMX2485/85E/85Q-Q1/86/87/87E: Refresh of profile for improved user experience.
- Updated LMX2471/72/72LP.
- Updated LMX2594: Added ACAL_CMP_DLY.
- Updated LMX2595: Added ACAL_CMP_DLY, Supports 20 GHz.
- Updated LMX2615-SQ: Fixed output divider.
- Updated LMK05318: Fix PLL2_RDIV_SEC bug. Corrected BAW_LOCK calculation for when using doubler. Updated recommendation for PLL1_LF_R2 from 880 ohms to 2505 ohms. Added Extra bytes for SRAM/EEPROM write for EEREV and I2C SLAVEADR.
- Updated LMK05028: Added DPPLL1 and DPPLL2 register set export buttons to enable update to DPPLL1 or DPPLL2 separately.
- Improved robustness of "Import hex registers" function and added bit masking to allow import of only masked bits in a given register.

5.28 Version 1.6.10.0, 19-Jul-2019

- Added CDCE6214-Q1 for APL.
- Added LMX2694.
- Updated LMK03318/28 with frequency planner.
- Minor updates to LMX2615, LMX2595, and LMX2594

5.29 Version 1.6.10.0, 29-Oct-2019

- Added CDCDB2000.
- Updated CDCI6214 with FOD removed.
- Updated LMK05028:
 - Added DPLL1 and DPLL2 register set with Outputs export buttons to enable update to DPLL1 or DPLL2 separately along with all descending outputs. The purpose is to create programming to treat LMK05028 as two separate DPLLs in one device. Only TCXO MDIV and TCXO doubler must be the same for the different DPLL configurations.
 - Added ability to force DPLL denominator.
- Bug fixes applied for calculating DPLL mode = 2 loop: TCXO, APLL.

5.30 Version 1.6.10.0, 25-Nov-2019

- Updated CDCE6214-Q1 for RTM

5.31 Version 1.7.0.0, 09-Jan-2020

- Core updates:
 - Import hex register values will also program the registers if Options → Auto Update is checked.
 - Import TCS file update. Will skip rather than abort loading .TCS files containing registers not in current device's Raw Register map.
- Bug fixes to CDCE6214-Q1. Fixed fractional feedback divider bug.
- Updated LMK04832:
 - Added frequency planner to LMK04832.
- Bug fixes and updates to LMK05318:
 - When XO doubler is enabled, frequency detector is properly calculated.
 - Saved .TCS files will now result in VCO2 frequency properly displayed on load.
 - Improved frequency detector input validation calculation.
 - Improved 1 PPS DPLL filter calculation.
 - Corrected APLL2 cascade configurations with no outputs from APLL1 to keep APLL1 powered up.
 - Bug fix for early/missing clock validation calculations with low and high frequency references.
 - Update to status page layout.
 - Added register R167 for read back of active selected reference.
 - To EEPROM export added [META] section with programming EEPROM info. EEPROM export will also automatically press "(1) Commit Registers & Extra Bytes → Chip SRAM" to ensure EPR file contains valid data and not 0s.

5.32 Version 1.7.0.0, 21-Feb-2020

- Updated LMK05318 with a default 1 PPS configuration under "Default configuration" menu option.
- Improved recommended configuration when DPLL calculations are done for 1 PPS (1 Hz) reference input for lock time.

5.33 Version 1.7.0.0, 5-Jun-2020

- Added LMX2820

5.34 Version 1.7.0.0, 19-Jun-2020

- Added LMK05318B

5.35 Version 1.7.0.0, 21-Aug-2020

- Added LMK5B12204
- Added LMK04832-SP
- Fixed backward compatibility issue with LMK05318B
- Restored current calculator to LMK04821/6/8

5.36 Version 1.7.1.0, 25-Sep-2020

- Updated TICS Pro core for faster loads on devices with large control counts
- Updated TICS Pro core to support visual-only GUI updates during register loads

5.37 Version 1.7.2.0, 10-Oct-2020

- Bug fix for v1.7.1 TICS Pro
- Abort read all registers on error
- Add LMK5C33216

5.38 Version 1.7.2.0, 23-Nov-2020

- Update LMK5C33216 for public release
- Correction to VCO ranges on LMK04610, LMK04616, LMK04828, and LMK04832. Should now match datasheet values

5.39 Version 1.7.2.0, 02-Dec-2020

- Updated LMX2820

5.40 Version 1.7.2.0, 24-Dec-2020

- Updated LMK5C33216

5.41 Version 1.7.2.0, 5-Feb-2021

- Updated CDCE6214-Q1
 - Added a frequency calculation tool
 - Fixed EEPROM programming bug with direct access method by adding 10 ms time interval and relocking the EEPROM after programming.
- Updated LMK05318B and LMK5B12204:
 - Fixed DPLL frequency lock detect bug in backward compatible mode
 - Fixed OUT7 divider bug
 - Updated early/late window detect calculation for reference frequencies below 5 MHz
- Updated LMK5C33216
 - Added APLL DCO, DPLL DCO.
 - Added Vcm and Vod information for outputs.
 - Fixed bug in DPLL bit setting calculation.

5.42 Version 1.7.2.0, 14-May-2021

- Updated LMK5C33216
- Updated LMK04832
 - Fixed bug in current calculator for CLKout7 LVCMOS

5.43 Version 1.7.2.0, 6-July-2021

- Add CDCDB800
- Add LMX1204
- Updated LMK5C33216. Fixed bugs in frequency planner, OUT2/3 and OUT14/15 issues. Added DPLL cascade buffer bits to be set automatically.

5.44 Version 1.7.2.0, 1-Oct-2021

- Add LMK1D1208I

5.45 Version 1.7.3.0, 17-Dec-2021

- Core update to restore color alerts to comboboxes, many other bugfixes
- Updated numerous devices to work with 1.7.3
- Add LMX2571EP

5.46 Version 1.7.4.0, 6-Jan-2022

- SetAddress_I2C now works correctly. Returns bool True on success or False on failure.
- No longer possible to delete user device if that device is currently active.

5.47 Version 1.7.4.1, 23-Feb-2022

- Added LMK5B33216.
- Updated LMK5C33216. Many bugfixes.

5.48 Version 1.7.5.0, 20-Apr-2022

- Numerous bugfixes, performance improvements, and load time reductions
- New USB2ANY DLL released – version 2.9.1.1
 - SPI/I2C transaction speed over USB2ANY increased by up to 50x
- TCP automation server now provided as a 64-bit compatible alternative to ActiveX automation. Check TICSPro_TCP.py in install directory for basic python client implementation. ActiveX will eventually be deprecated in favor of TCP automation.
- Updated LMK05318B
 - Fixed a configuration loading error when PRIREF or SECREF were set to 0
 - Fixed backwards compatible mode not setting CLKIn hysteresis 50 mV
- Update LMK5B33216 with bugfixes. Some outputs would not properly turn on in some cases
- Numerous improvements from LMK5B33216 backported to LMK5C33216
 - ZDM is still in progress for LMK5C33216.
 - Apply VCO frequency button now calculates DPLL dividers.

5.49 Version 1.7.5.0, 15-Jun-2022

- Add LMK5B33414
- Update LMK5B33216
- Update LMK04832: Added warnings for frequency range violations and NCAL_DIV mismatch, force minimum value of 8 for SYSREF_DIV and DDLY.
- Bugfix CDCI6214

5.50 Version 1.7.5.4, 12-Jul-2022

- Bug fixes and improvements to LMK5B33216 and LMK5B33414.
- Fix to LMX248x device family during register import
- Fix to I2C/SMBus I/O for several devices (CDCI6214, CDCE6214(-Q1), LMK1D12xxi, CDCDB devices)
- Fix to block read/write option to include writeall/readall
- Fix to I2C not updating USB2ANY serial on main page
- Fix to edge cases in tool profiles and burst mode
- Unicode support added for .tcs files
- Arbitrary path length support enabled for loading/saving files
- Include version string in splash screen

5.51 Version 1.7.5.7, 31-Aug-2022

- Bug fixes and improvements to LMK5C33216, LMK5B33216, and LMK5B33414
- Update LMX1204 to RTM version
- Bug fixes and improvements to core TICS Pro
 - Hidden checkboxes now stay hidden
 - User Controls and Flex Page controls with the same name now update each other without errors
 - Resizing application on User Controls page no longer breaks User Controls
 - Option to include TCS file in application title on load. Currently supports only .tcs files (no hex .txt files yet)

5.52 Version 1.7.5.7, 03-Feb-2023

- Added programming page to LMK5B33216, LMK5B33414, LMK5C33216
- Bug fixes and improvements to LMK5C33216, LMK5B33216, LMK5B33414

5.53 Version 1.7.5.7, 14-Feb-2023

- Bug fixes and improvements to LMK5C33216, LMK5B33216, LMK5B33414

5.54 Version 1.7.5.7, 28-Feb-2023

- Bug fixes and improvements to LMK5C33216, LMK5B33216, LMK5B33414

6 Known Issues

LMK5C33216

When cascading from VCO3 to DPLL input, the divide value must manually be entered into $DPLLx_REF5_RDIV = VCO3 \text{ output frequency} / DPLLx \text{ TDC frequency}$.

LMK05318

In some cases, it is necessary to press “Calculate Frequency Plan” twice in LMK05318 for correct VCO2 frequency. → Use LMK05318B GUI.

Other

Burst mode page looping requires long delays to be able to stop, may crash. To be fixed.

7 Technical Support and Product Updates

Please post questions for support on to the TI E2E Community at <https://e2e.ti.com/support/clocks/>

8 Release History

S.No	Version	Description	Release Date
1	1.0.0.0	First Release	23-Dec-2015
2	1.1.0.0	Add parts & bug fix	16-May-2016
3	1.2.0.0	Add parts & bug fix	25-Jul-2016
4	1.3.0.0	Add parts & bug fix	30-Aug-2016
5	1.4.0.0	Add parts & bug fix	04-Nov-2016
6	1.5.0.0	Add parts & bug fix	30-Dec-2016
7	1.6.0.0	Add parts & bug fix	12-Jan-2017
8	1.6.1.0	Add LMK61E0M	25-Jan-2017
9	1.6.2.0	Add LMK04610	30-Jan-2017
10	1.6.3.0	Added LMX2594	23-Mar-2017
11	1.6.4.0	Add LMK04616	30-Mar-2017
12	1.6.5.0	Added PLL2 to LMK461x	19-May-2017
13	1.6.5.0	Added LMX2595, CDCI6214	30-Jun-2017
14	1.6.5.0	Added PLMK04832, Update LMX2595	14-Jul-2017
15	1.6.5.0	Added LMX2572	16-Aug -2017
16	1.6.6.0	CDCI6214 Update	03-Oct-2017
17	1.6.6.0	CDCI6214 & LMX2572 Update	30-Oct-2017
18	1.6.7.0	Added LMK04832	04-Jan-2018
19	1.6.7.0	Updated LMX2581, LMX2582, LMX2592, LMX2594, LMX2595. Added CDC drivers, CDCM6208V1, CDCM6208V1F, CDCM6208V2, CDCM6208V2G	27-Feb-2018
20	1.6.8.0	Added LMK05028 in Network Synchronizer Clock Device group	12-Apr-2018
21	1.6.8.0	Added LMX2572LP and LMK03318 and updated LMX8410L	7-May-2018
22	1.6.8.0	Added LMK05318	7-Jun-2018
23	1.6.8.0	Bug fix for LMK03328 and LMK04610	8-Aug-2018
24	1.6.8.0	Added LMX2615	21-Aug-2018
25	1.6.8.0	Upgraded LMX2615, 8410L, and Fixed LMX2571	15-Nov-2018
26	1.6.9.0	Updated LMK05318 and LMK03318	11-Dec-2018
27	1.6.10.0	Updated LMX2485/85E/85Q-Q1/86/87/87E, LMX2471/72/72LP, LMX2594/95, LMX2615-SQ, LMK05318, LMK05028, core updates.	16-May-2019

28	1.6.10.0	Added CDCE6214-Q1 and LMX2694, add frequency planners to LMK03328 and LMK03318	19-Jul-2019
29	1.6.10.0	Added CDCDB2000. Removed FOD of CDCI6214. Updated LMK05028.	29-Oct-2019
30	1.6.10.0	Updated CDCE6214-Q1 for RTM	25-Nov-2019
31	1.7.0.0	Updates to core, CDCE6214-Q1, LMK04832, LMK05318, and LMK05028.	09-Jan-2020
32	1.7.0.0	LMK05318 improved 1 PPS support.	21-Feb-2020
33	1.7.0.0	Added LMX2820	5-Jun-2020
34	1.7.0.0	Added LMK05318B	19-Jun-2020
35	1.7.0.0	Added LMK5B12204, added LMK04832-SP, bug fix for LMK05318B, updated LMK04821/6/8	21-Aug-2020
36	1.7.1.0	TICS Pro Core improvements	25-Sep-2020
37	1.7.2.0	TICS Pro Core improvements & bugfix. Added LMK5C33216	13-Oct-2020
38	1.7.2.0	Updated LMK5C33216 for public release Bugfix for LMK0461x, LMK04828, LMK04832	23-Nov-2020
39	1.7.2.0	Updated LMX2820	02-Dec-2020
40	1.7.2.0	Updated LMK5C33216	24-Dec-2020
41	1.7.2.0	Updated CDCE6214-Q1, LMK05318B, LMK5B12204, LMK5C33216	5-Feb-2021
42	1.7.2.0	Updated LMK5C33216, LMK04832	14-May-2021
43	1.7.2.0	Added CDCDB800, LMX1204. Updated LMK5C33216	6-July-2021
44	1.7.2.0	Added LMK1D108I	1-Oct-2021
45	1.7.3.0	TICS Pro Core bugfixes Added LMX2571EP	17-Dec-2021
46	1.7.4.0	TICS Pro Core bugfixes	6-Jan-2022
47	1.7.4.1	Added LMK5B33216 Updates to LMK5C33216	23-Feb-2022
48	1.7.5.0	TICS Pro core improvements USB2ANY firmware version 2.9.1.1 TCP automation replaces ActiveX Updated LMK05318B Update LMK5B33216 Update LMK5C33216 Add LMK04228	20-Apr-2022
49	1.7.5.0	Add LMK5B33414 Update LMK5B33216 Update LMK04832 Bugfix CDCI6214	15-Jun-2022
50	1.7.5.4	Update LMK5B33216 Update LMK5B33414 TICS Pro core bug fixes and improvements	12-Jul-2022
51	1.7.5.7	Update LMK5B33216 Update LMK5B33414 Update LMK5C33216 Update LMX1204 TICS Pro core bug fixes and improvements	31-Aug-2022
52	1.7.5.7	Update LMK5B33216 Update LMK5C33216 Update LMK5B33414	03-Feb-2023

53	1.7.5.7	Update LMK5B33216 Update LMK5C33216 Update LMK5B33414	14-Feb-2023a
54	1.7.5.7	Update LMK5B33216 Update LMK5C33216 Update LMK5B33414	28-Feb-2023