Fusion Digital Power Designer 7.x

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Version 7.0.01 [2017-04-03]	• Initial release.
Version 7.0.11 [2017-05-01]	• Command Line Tool: change the default scan-mode from “device_id” to combo (DEVICE_ID + DEVICE_CODE + IC_DEVICE_ID) • Import: For device that support “Store to Flash”, show options to Store to Flash and Clear Fault after importing configuration. • Export: When option “Include Device Address” is selected, the script exports incorrect device’s address (zero). Bug fixed • Sequencing Plot: include dependencies on rail in turn off timing. • Preferences: when users delete all GUI preferences, reset the default device scan mode to “DEVICE_ID&DEVICE_CODE&IC_DEVICE_ID” instead of none. • System Monitor window: add OPERATION command to the column. For device with multiple rails, switching rails does not update the VOUT_COMMAND value on the Vout chart (bug fixed). • Rail names & GPIO names: previous GUI does not import rail names and GPIO names. Bug fixed • Device specific: ❖ TPS546C23: importing configuration to slave device fails due to slave-device NACKs on some commands (TON_MAX_FAULT_LIMIT) => detect slave-device and skip importing the commands that will be NACKed by device. ❖ TPS404xx: import configuration fails due to read-back validation mismatch on VOUT_SCALE_LOOP due to rounding => add logic to compare the equality of the two values based on 3 decimal places. ❖ UCD90160 & UCD90160A: importing configuration to device where the number of rails in the configuration file and current device’s configuration are different resulting in GUI crashes (bug fixed). ❖ UCD90320: LGPO does not display the Delay Time correctly if the increment is in decimal value (for example 0.1 ms) ❖ UCD90320: GPI_CONFIG fault pin bit is not loaded properly at GUI start up (bug fixed). ❖ UCD90XX: Add rail or update MARGIN_CONFIG requires “Write to Hardware” twice in order to make that “UNDO” icon disappears (bug fixed).
Version 7.0.15 [2017-06-30]	• FusionConfigWriter command line Tool: if device does not support erase data

	flash, then ignore the flag instead of reporting error • System Monitor window: both charts display the same data; toggle Control Pin many times cause GUI hangs • Importing system file (.tifsp) does not update the display data in the main window. • VIN chart displays incorrect data for VIN_ON and VIN_OFF limits • Export window: the UI controls are cut off • Device Specific ❖ TPS549B22: Add support for new device ❖ TPS53681: Add support for new device ❖ TPS53622A/TPS53659A: Add support for new device. ❖ TPS544x2x: Fail to import the configuration to device due to the voltage commands have limits that need to be written in a specific order. ❖ TPS53647/53667: ➢ MFR_21: click on the control cause GUI crashes ➢ Monitor task: there is no display for READ_VOUT ❖ UCD92xx: ➢ GUI crashes if device is blank on start up ➢ On the Design task, changing the K factor does not update the CLA coefficients ❖ UCD90XX: ➢ Importing configuration using FusionConfigWriter fails ➢ Logged Enable displays incorrect device's values (Global Configuration tab) ➢ Scaling controls (SCALE_GAIN & OFFSET) are disappeared if users switching rails from the Monitor task.
Version 7.0.18 [2017-07-10]	• FusionConfigWriter: display "PASS/FAIL" text at the end of the operation • System File (.tifsp): if users build offline system using project file (.xml), when users click on "Save System File", the system configuration will be saved with the .xml extension. As the result, when users open the saved system file with the xml extension next time, GUI reports an error. • Device Specific ❖ UCD90XX:

	➢ GUI crashes when users add multiple rails and then click on "Write to Hardware" button ➢ System Monitor: GUI crashes when GUI is polling and users perform a reset
Version 7.0.21 [2017-12-05]	• FusionConfigWriter CLI: ❖ Add options to vary STORE_DEFAULT wait time before and after sending command to store configuration to non-volatile memory ❖ Support erase data flash only (UCD devices only, except UCD90240/UCD90320) • FusionFirmwareDownload CLI: support firmware download for UCD90320 (.bin format). • Import system file: stop conversion on all rails before importing configuration behavior change: was setting the rails' ON_OFF_CONFIG to using Control Pin – Active High, and then drive the Control Pin to low to turn off all rails, now setting the rails' ON_OFF_CONFIG to using Operation Only, and then write all rails' OPERATION (0x01) with data = 0x00 to turn rails off. (Some users' system has Control Pin connected to pullup resistor, as the result, cannot drive the Control Pin to Low in order to turn rails off) • USB Adapter: detect adapter firmware not supported by Fusion GUI (currently only support firmware version 1.0.10 to 1.0.14), and prompt users for firmware upgrade. • Detected unsupported devices and prompt users instead of throwing exception. • Power Tree: display both PMBus and I2C device addresses in hexadecimal and decimal format. Be able to sort devices by address. • Sequencing plot: handle complex circular dependencies and warn users • Monitor charts: Be able to set the chart Y axis minimum and maximum values using negative values; when page is switched, clear the displayed data points; fix the issue with Temperature charts not updating correctly. • Device Specific: ❖ UCD90XX ➢ Options to name the enable pins and add extra text note to rails (displayed in Monitor tab). ➢ Sequencing dependencies off LGPO pins display incorrect info ➢ Pin Select Rail States: not all configured rails shown in the window. ➢ System Reset: GPI Tracking Number and GPI Release Delay Time is always displayed as zero on startup. ➢ GPIO Pin Selector: display "Functions that pin can perform…" as LGPO instead of GPO. ➢ In Offline mode: be able to open project file mode when Security is enabling. ➢ Fix the issues with FPWM pins show up as generic PWM pins when rails configured with Margin pins are deleted or modified. ❖ TPS53641: GUI throws exception when users change VBOOT value. ❖ TPS40422: monitor task: the reading from Iout and Vout are swapped ❖ TPS40425: rail #1 reporting reading from rail #2 and vice versa; Allow users to importing MFR_04/MFR_05/MFR_06 even when MFR_25 is in

	AVS Mode: usually, the commands are no-read-no-write when rail is in AVS bus Mode, GUI will change the rail to PMBus Mode (MFR_25) first in order to write MFR_04 through MFR_06, and then change MFR_25 back to the actual setting. The changes result in importing configuration to device might result in two Store_Default operations and two device power cycles. ❖ TPS53681 & TPS53655 ➢ VOUT_DROOP is decoded and encoded using VOUT_DROOP command and MFR_09 [bit 15] to add extra 2 mΩ offset. ➢ Channel B (rail #2) number of phase is configured using USER_DATA_11[page0][bit9:8] ❖ Whaleshark SR: ➢ Importing/exporting PMBus Programming script (.csv): add option to read back the MFR_SERIAL and verify the read-data with MFR_SERIAL stored in the configuration file after importing configuration is completed and STORE_DEFAULT is sent. •
Version 7.0.25 [2018-02-01]	• System Monitor: when there are multiple devices on the system, switching plot to view different device does not work • Device window: display project file info: if not saved yet, display as "Not Saved"; if saved, display the project file name; if users modify the configuration and have not saved the file, displayed as "project file name + [* Edited]" • Device Specific: ❖ UCD90XX: ➢ Import Configuration to device where the number of rails in the configuration file is more than the number of rails currently on the device result in the extra rails configuration being reset to default values ➢ UCD90320: Export data flash file: the option to export flash in Normal Mode is hidden. Users should be able to export flash in Normal Mode, which is required by UCD90320 ❖ TPSWolfFish 546x23: Import configuration to slave device report error due to missing VOUT_SCALE_LOOP in configuration file, which should not be the case since there is no voltage related parameters needed to be imported •
Version 7.1.1 [2018-09-18]	• New RTM devices: UCD90320U and TPS53675 • CLI: support importing system file (.tifsp) • System Monitor: Control Pin does not work if an offline device is added into existing online devices. • Report: be able to generate device report from System View (Main Window) • Sequencing chart: option to select rails to view. • Chart: plot IOUT and TEMP per phase • Device Specific: ❖ UCD90XX: ➢ Report: add margin pin configuration to rails' report. ➢ Hardware Report: be able to generate pin assignment report. ➢ Configuration tab: "GPI Config" link is disabling incorrectly if pin is configured as fault pin (UCD90240/UCD90320). Bug fixed

	➢ UCD90320x: add firmware download tool for UCD90320x devices ➢ UCD90320 does not support SMBALERT_MASK for MFR_STATUS_5 => don't include the command in project file and don't import the command. ❖ TPSKingfisher: add TPS40428 to offline device selection ❖ TPSKingston: ➢ TPS40422 replace the offline new device project file for single-output, dual-phase with the new one from Qian Chen. ➢ TPS40422: GUI does not save channel 2 (dual-phase device) configurations correctly to project file. Bug fix. ❖ UCD92XX: ➢ GUI crashes when users select offline new UCD9248 device, then navigate to Design task. ➢ UCD9224: when users select offline new UCD9224 devices, the device is incorrectly displayed as UCD9222.
Version 7.2.1 [2019-12-19]	• New RTM device: TPS546D24A • SMBus/I2C/SAA tool: option to create and run batch file (sequence of SMBus/I2C commands). • System Monitor ➢ Option to show/hide rails to view ➢ Bugs: Control Pin and OPERATION controls are disable if there are more than one device on the bus, and one of them are offline device ➢ Plot: changing device does not update chart; changing rail does not update All-Vout, All-Phase, All-Iout, All-Temp char • Polling Status: Option to select commands to be polled. • Importing: ❖Options to vary "reset_wait_time" when importing data flash file (.hex). ❖Options to vary delay time before and after STORE_DEFAULT command is sent • Opening project file (.xml) or system file (.tifsp) accepts lower or upper case • Devices Specific: ❖UCD90XX ➢ Pin Info does not export GPI CONFIG correctly for UCD90320x. ➢ GPI_CONFIG: cannot configure as Fault Pin or Debug Mode for GPI number that is greater than 8. ➢ Error Checking: incorrect warn about FPWM and its pair configured as Margining ➢ User name bug: if users add new item, then change the user name, then write to hardware, then user name changes back to default value ❖UCD92XX ➢ Num Rails/Num Phase tab: controls are not shown properly. ➢ VOUT_COMMAND: set maximum to 15.99V ➢ VOUT_MODE is read-only command ➢ Show CLA Coefficients. ➢ Load design to online devices only if part ID and address, and coefficients match the design saved on the working computer. ❖TPS53681 ➢ Warn if users attempt to change the MFR_MODEL & MFR_REVISION: they are used to identify the part on the bus.

	➢ Hide unsupported commands: MFR_IOUT_MAX, MFR_VOUT_MAX, MFR_VOUT_MIN, and MFR_MAX_TEMP_1. ➢ MFR_PIN_MAX: change command to read-only command, decoded as 2 Watt/LSB.
Version 7.3.1 [2020-05-08]	• New RTM devices: TPS53820, TPS546A24A, TPS546B24A • Power Tree & System Monitor: fix the issue with sorting per devices' addresses not working as expected. • UCD90XX: Calibration commands: IOUT_CAL_GAIN, IOUT_CAL_OFFSET, TEMPERATURE_CAL_GAIN, and TEMPERATURE_CAL_OFFSET: encode the values match device's encoding scheme. • UCD90XX: GUI crashes when users select PWM3 or PWM4 as fan PWM control for UCD90910 devices. • UCD90XX: Error Checking: add more error checking for SEQ_CONFIG: rail fault cannot shutdown slave rails: Rails: slave rails will not be shut down if this rail's fault responses are set to ignore; slave rails will not be shut down if slave rails turn off dependencies has not met. • UCD90120A, UCD90124A, and UC90910: devices with fans: LGPO: cannot save configuration if number of fans is more than number of rails, and LGPO is selected to monitor Fan's status. • TPS53678/679/658/659/622/681/655/675: Importing & exporting: remove VOUT_MARGIN_XX from validation steps after reset. These commands are not NVM backup, therefore after reset will reverted to default values.
Version 7.4.1 [2020-09-30]	• New RTM devices: TPS53688, TPS536C7, TPS542A50 • System monitor window: remove commands from polling if users say so (by select commands to poll in Polling Status window) to reduce traffic on the bus. • Script Runner tool: fix the issue of running the tool: GUI reports error due to null object. • UCD9xxx: Warns users if devices are detected in ROM mode and let users decide if they want to send devices to Program mode. • UCD90xx: remove latency-GPI warnings. • UCD90XX: when users add new GPI & GPO pin, pick default pin to assign to GPI/GPO slot per GPIO Number order • UCD9xxx: STORE_DEFAULT wait times: minimum wait time before sending the command is 1 second. After sending the STORE_DEFAULT command, if MFR_STATUS, bit [9] (STORE_DEFAULT_ALL_Done bit) is not set within the time interval defined by users (minimum is 5 seconds), then reports STORE_DEFAULT operation as failure. • TPSCatfish: importing config file with different Vout Scale Loop value than current device's value resulting in GUI displays incorrect limits range for OVF/OVW/UVF/UVW. • TPSCatfish: MFR_SPECIFIC_19: fix the bug where PGOOD_ON & PGOOD_OFF nibbles are swapped. • TPSCatfish: change the VIN_UV_WARN_LIMIT from 5V to 22V. • TPSWhaleshark: Support VR12.0, 5mV (001b) and VR12.5, 10mV (010b) in MFR_SPECIFIC_13. • TPSWhaleshark: Support "2TO1 dynamic phase transition EN" in MFR_SPECIFIC_15. Changing the "2TO1 dynamic phase transition" from Enable (1b) to Disabled (0b) required a STORE_NVM and power cycle for

	the change to take effect.
Version 7.5.1 [2021-01-05]	• New RTM: UCD90160N • FusionConfigWriter: allow importing project file from compatible devices. • Importing project file bug: cannot import other non-device configuration without importing device's configuration: if users select to import Sequencing data or Design data without importing device configuration, then GUI hangs. • UCD90xx devices: support re-order GPI pins; fix the incorrect PWM1 & PWM2 frequency limits for UCD9090A and UCD9090B devices. • UCD90xx devices: TON_DELAY/TOFF_DELAY/TON_MAX_FAULT/TOFF_MAX_WARN: change the command resolution to match firmware • UCD9090A/UCD9090B: incorrect frequency limits for PWM1 and PWM2 pins. • Importing project file: if users select to import Sequencing data or Other data without importing device configuration, then GUI hangs.
Version 7.6.1 [2021-02-03]	• New RTM: TPS53676
Version 7.7.1 [2021-09-30]	• New RTM: TPS53689, TPS53830. • UCD90XX firmware download using script file (.csv) in I2C bus mode does not work. Fixed • Device/Project Config Compare Tool: add options to include PAGE/PHASE index, to display WORD and BLOCK commands with LSB or MSB byte first, and to include program data to SMBALERT_MASK commands or not. • Export device configuration to text file: include PAGE/PHASE index, to display WORD and BLOCK commands with LSB or MSB byte first, and to include program data to SMBALERT_MASK commands options. • TPS536C7: System Config tab: make changes on "Multi-Function Pins" function on Pin 19 (SYNC_IN / SYNC_OUT / RESET / BVR_EN) should only change MFR_CD bytes[15] & bytes[16]. Fixed • UCD9246: GUI crashes when users attempt to write FSW command. Fixed
Version 7.9.1 [2023-01-26]	• New RTM: TPS53685, TPS536C5, TPS544C26 • Support TI USB2GPIO adapter 2022. • Sequencer GUI (UCD90XX) rework. • Bug fix: Import configuration to device reports incorrect error regarding "typecast". • Bug fix: import data flash (.hex) for UCD90320x reports incorrect error regarding data flash size • Bug fix: import script file (.csv): GUI does not handle properly if "Address" column is missing from file. • Bug fix: Cannot save configuration to file if device NACKs on any command. Change to allow saving with null value on NACKed commands.
Version 7.10.1 [2023-10-30]	• New RTM: TPS53689T, TPS536C9T
Version 7.11.1 [2026-06-01]	• New supported devices: TPS536x9T48V, TPS536x6T, TPS53688A, TPS53656A, TPS536C7B1A • Multiple bug fixes
