

# 2023.2 Software Release Highlights

- New e-mobility features
- Support for .a files in Advanced C function
- 25 ns DC-DC solver
- Custom FW configurations
- Package Manager: Marketplace
- Remote IO Interface
- Additional features
  - PTP time synchronization
  - Hysteresis implementation

Typhoon HIL Control Center 2023.2	Typhoon HIL Control Center
	Control Center
	Version 2023.2 Aaujou 5053 S

### **1.1 New Automotive features**

*Test the state of the art in EV charging communication* 

- □ ISO 15118 Plug and Charge improvements
  - Added options to upload certificates from the component dialog
  - Allows automatic charging payment with a transport security layer
  - Enable secured communication using certificates
- □ ARXML file support for CAN components
  - Configuration and specification information in XML format for ECUs
  - Standardize data exchange between vehicles
- □ XCP over CAN support in HIL SCADA
  - Measurement and calibration of ECUs
  - XCP master support added as a Python library in HIL SCADA
  - Support for A2L files

Connection options		Charg	e parameters			
Medium type:	Ethernet 💌		ltem name	Value	multiplier	Include
Connection type:	Secured connection *	1	Departure Time	0		~
Import folder with certificates:	Choose folder	2	Maximum Current limit	10	0 -	
Imported folder path:	Absolute	- 3	Maximum Voltage limit	100	0 -	
		4	Maximum Power limit	1000	0 -	~
Service and payment		5	Energy Capacity	1000	0 -	
Service category:	EV Charging 👻	6	Energy Request	1000	0 -	
Payment option:	Contract 🔹	7	Full SoC	100		~
Energy transfer mode		8	Bulk SoC	80		•
Energy transfer mode:	DC core 👻	9	Bulk Charge complete	from input terminal		
Welding detection		10	Target Current	from input terminal	0 -	
_		11	Target Voltage	from input terminal	0 *	
Perform Welding detection:	<b>v</b>	12	Time to Full SoC	from input terminal	0 -	
Voltage accuracy		13	Time to Bulk SoC	from input terminal	0 -	
Pre-charge voltage accuracy:	5 %				0	
Execution rate						
Execution rate:	100e-6					



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## **1.2 New Automotive features**

*Test the state of the art in EV charging communication* 

#### □ LIN Protocol

- Support added via CAN to LIN with FRC-EP170 gateway
- Serial network protocol used for communication between components in vehicles

#### □ J1939 DM1 message receive

- Diagnostic message contains several DTC messages representing ECU faults
- Variable message size supported





J1939 Receive1

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## 2.1 Support for .a files in Advanced C function

Securely share your proprietary control code

- Novel (.a) file type lets you pre-compile code
   for Typhoon HIL devices and share it as a Typhoon
   library
- Keep the IP of your control algorithms completely protected by sharing only pre-compiled code
- All functions and variables are available for further use inside an Advanced C function component
- □ Available for both of Typhoon HIL's CPU architectures:
  - ARM A53 in 4th generation devices
  - ARM A9 in 3rd generation devices

General       Functions       Library import       Additional sources         DLL library       Image: Compile-time load Image:
✓ Change path to relative       Library load type:     Compile-time load ▼       DLL file:
✓ Change path to relative       Library load type:     Compile-time load ▼       DLL file:     …
Name

### 3.1 DC-DC solver with 25 ns resolution

*High fidelity model for fast charger applications* 

- FPGA block calculates Dual Active Bridge and Resonant converter components with 25 ns time resolution on 4th Generation devices (HIL404 and HIL606)
- Resonant converter and Dual Active Bridge are also available on
   3rd generation devices (HIL604 and HIL602+) with 50 ns simulation
   step
- Specially designed to fulfill the needs of high frequency DC-DC charger applications
- □ Powered by the special DC-DC converter solver resource





#### 4.1 Custom FW configurations

Make the most of your HIL device

- Tailor your Firmware configuration to get more power and flexibility from your HIL device
- □ Effectively address applications with specific requirements
- □ Fully automated configuration validation during form entry
- □ Fully integrated in Typhoon HIL Control Center

#### Request custom firmware

ogic		92
Memory		82
Device type	HIL404 -	
Number of SPCs	1 3	
SPC MAC num	1 [4]	
SPC matrix mem	2 4	
SPC max converter weight	3 3	
SPC global GDS oversampling	NO TES	
SPC switch-level GDS ovs	NO TES	
SPC GDS variable delay	NO TES	
SPC contactors ideal	0	6
SPC Non-ideal switches	0 0	
SPC time varying elements	0	16
SPC converter power losses	NO TES	
SPC converter FVD	NO THE	
Aachine solvers	0 [1]	
Nonlinear machine support	NO TES	
Nonlinear machine LUT size	16 32	
Protocol position feedback suppo	rt NO TES	
ignal generators	0 (	12
ook Up Tables	0	8
DC-DC converter solvers	0 0	
WM modulators	0 12	
WM analyzers	0 4	
Parallel DTV detectors	0 0	
acalloling support	NO CTE VES	

#### 5.1 Package Manager: Marketplace

Promote your work to a wider audience

- Packages can now be saved, published, and shared remotely in the Marketplace
- Packages can be created through a dedicated
   Package Manager wizard tool
- New Marketplace tab lets you download any current or historical versions of your chosen package
- Contact Typhoon HIL if you would like your package to be published for other users

Installed Marketplace	Package 1
Search	Author: Typhaon HIL
Package 1	Install latest
	It is a simple package for testing.
	Package created successfully
	The package 'Package 1 - 1.0' was created successfully.
	The package contains 1 examples, 1 libraries, 0 additional files, 0 python p and 0 documentation files. Release notes file is not included in the package.
	Package is saved at: C: \Users\jovana.markovic\Desktop\Package 1\package 1.tpkg
	Package name: Package 1 Version: 1.0 Author: Typhoon HIL Description:
	It is a simple package for testing. Examples:
	C: Users\jovana.markovic\Desktop\Package 1\example 1
	Libraries: C:\Users\jovana.markovic\Desktop\abb test lib.tlib
	Additional files:
	Python packages:

	Object Browser     Start typing to filter objects in the	bucket
User		
	unverified	
Dbject Browser	Created on: Mon, Mar 06 2023 07:57:39 (GMT+1) Access: PRIVATE 62.4 KiB - 2 Objects	
📾 Access Keys	vunverified	
Documentation	Name	Last
Administrator	package 1	

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#### 6.1 Remote IO Interface

Expansion of interfacing possibilities

- □ IO expansion device intended to complement HIL Setups
- □ Same dimensions as a HIL 6-series device
- □ 1 mS update rate
- Data exchange with HIL Device
   via Ethernet Variable Exchange



#### **6.2 Remote IO Interface component**

Expansion of interfacing possibilities

- □ Part of the new HIL Interfaces Component Library
- Easily configurable (Ethernet VE setup handled by the component)
- Analog and Digital Output signals provided through Input ports of the component
- Analog and Digital Input signals accessible through internal probes and Output ports



## 7.1 Additional features

- Synchronize your HIL device with an external time source, such as:
  - GPS (Global positioning system)
  - PTP (Precision time protocol)
- □ Hysteresis effects
  - Available for nonlinear inductors and transformers
  - Increased fidelity of existing models









# Learn More

Visit: https://www.typhoon-hil.com/products/ 2023-2-software-release

Contact Us: info@typhoon-hil.com

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