Q-SENSE™ CODE COMPOSER STUDIO PLUG-IN

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Applied Signal Processing's **Q-Sense™ Plug-in** for Texas Instruments Code Composer Studio™ (CCS) makes fixed point code development and debugging easier and more intuitive. A Code Composer Studio™ plug-in is a software tool that integrates with, extends and/or customizes the Texas Instruments Code Composer Studio™ integrated development environment.

What is a Q-Type? The Q-type of a variable defines the number of implied fractional bits within the 16-bit (or 32-bit) fixed point raw representation of a value. This allows the raw native fixed point number to represent a real-life or floating point value. For example, a Q15 number has 15 implied fractional bits. A Q15 variable of raw value 4096 represents the value $4096/2^{15} = 0.125$. Unfortunately, normal emulator debugging tools don't know about the Q-type of your variables and therefore can only show its raw native value.

QSmart Watch Window

Name	Value	Raw Value	Q Type	Type	Radix
myglobal1	1234.567627	0x004D2915	12	long	float
myglobal2	45.799805	0x0002DCCC	12	long	float
my_var1	99.660004	0x063A8F60	20	long	float
new_global	987.652344	0x0003DBA7	8	long	float
new_global2	320.281250	0x00014048	8	long	float
my_var2	2004.437500	0x0001F51C	6	long	float

Screen Snapshot of Q-Smart™ Watch Window within Code Composer Studio.

The Q-Sense™ CCS plug-in automatically detects the Q-type of a variable and provides a Q-Smart™ Watch Window which allows users to both view and modify the value of a Q-type variable entirely within the floating point domain, relieving the user of the burdensome task of manually performing Q-Type to floating point conversions. This provides for a more natural and intuitive use of the debugging tools and lets users quickly inspect and change values, allowing them to concentrate on what matters most: getting their software, algorithm, or system working properly.

Q-SENSE™ TECHNOLOGY OFFERS THE FOLLOWING ADVANTAGES:

- Offers ease of viewing/entering various Q-type variable values as floating point instead of integer equivalent.
- Auto Q detect – The plug-in automatically selects the proper Q-type. The user does not need to know the Q-type and can be shielded from the internal representation of the value.
- Saturation Protection on entered values.
- Compatible with Texas Instrument's IQ Math Library for C28x.

AVAILABLE PLATFORMS

- CCS 2.2x for C54x, C55x, C28x Families.

ORDERING INFORMATION

Purchase the **Q-Sense™ Code Composer Studio Plug-in** using a credit card or company purchase order on our web Site: www.appliedsignalprocessing.com. The Software will be sent via email by the end of the next business day. The purchase price includes one year of free upgrades.

ABOUT APPLIED SIGNAL PROCESSING, INC

Applied Signal Processing, located near Madison WI, provides custom engineered solutions, reference designs, and contract engineering services for Digital Signal Processing and Embedded Systems. We are specialists in Digital Signal Processing, Active Sound and Vibration Control, Acoustics, Audio, and Voice Signal Processing with our staff having authored over 20 patents in those areas. We are able to help our customers in all phases of the product lifecycle from concept to production and we specialize in quickly bringing ideas to the feasibility and prototype stage.

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