PDQLogic

STM32-NUCLEO TRACE BOARD DATASHEET

PDQLogic Ltd.
Unit 15
4 Spring Bridge Road
Ealing
LONDON W5 2AA
UK

www.pdqlogic.com

info@pdqlogic.com

Introduction

The STM32-Nucleo Trace Board is an interconnect PCB that converts the low cost STM32 Nucleo-144 demonstrator board into a real-time ETM trace enabled evaluation board.

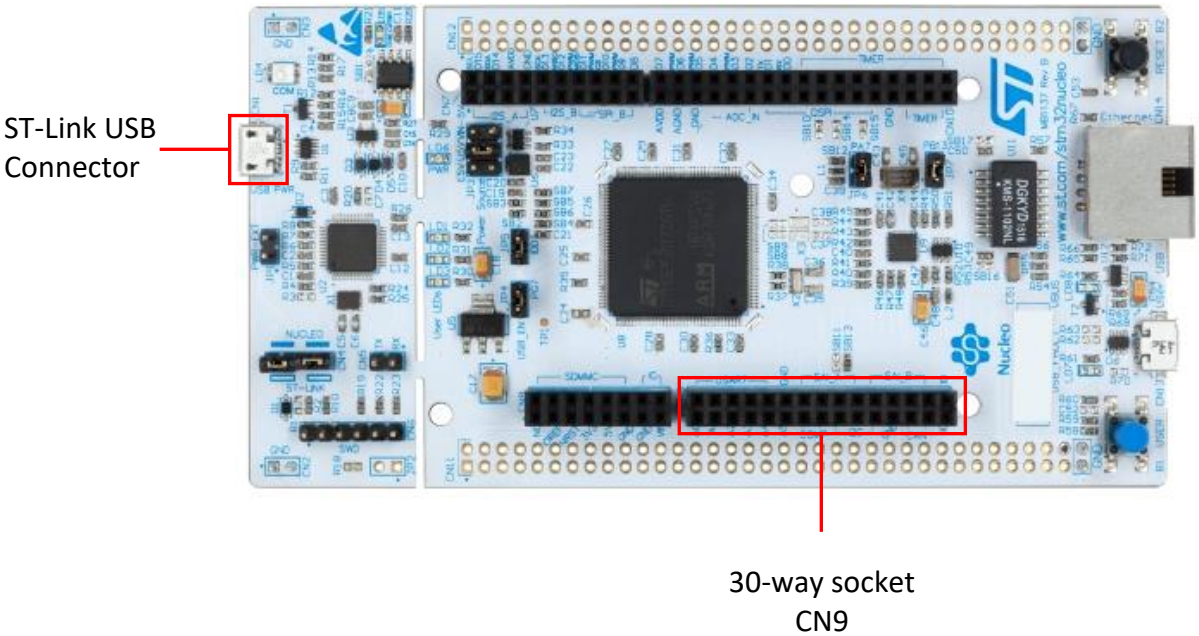
Real-time ETM Trace is generally seen as a tool for professional developers with deep pockets. Because of this the requisite 20-way trace header is omitted from all but the most expensive evaluation boards. These typically cost the same, or even more than, a QTrace probe. This can present a dilemma to users wanting to evaluate QTrace. With this converter PCB, trace is now available at up to 1/10th the price of some trace enabled evaluation boards.

The Nucleo-144 board features a TQFP-144 processor package, hence the '144' in the name. This allows multiple STM32 variants to be fitted in the same footprint. For further details of the Nucleo boards, take a look at the Nucleo-144 user manual from ST:

https://www.st.com/resource/en/user_manual/dm00244518-stm32-nucleo144-boards-mb1137-stmicroelectronics.pdf

The Trace Board picks up the trace clock / data signals (PE2 / PE3-PE6 respectively), and 0V, from the 30-way socket (CN9) on the Nucleo-144 board and routes them via low value series resistors to a 20-way 0.05" pitch trace header. Note that the SWD/JTAG signals are not brought out to the trace header as the Nucleo boards feature a built-in ST-Link debugger that is accessed via the micro-USB connector. The the micro-USB connector also provides power to the board.

The Nucleo-144 and the key connectors for trace are shown below:



CN9 Pin Assignments

Pin	Port Signal
1	PA3
3	PC0
5	PC3
7	PF3/PD11/PC1*
9	PF5/PD12/PC4*
11	PF10/PD13/PC5*
13	NC/PA1*
15	PA7/NC*
17	PF2/PA8*
19	PF1/PA9*
21	PF0/PA10*
23	***0V***
25	PD0
27	PD1
29	PG0

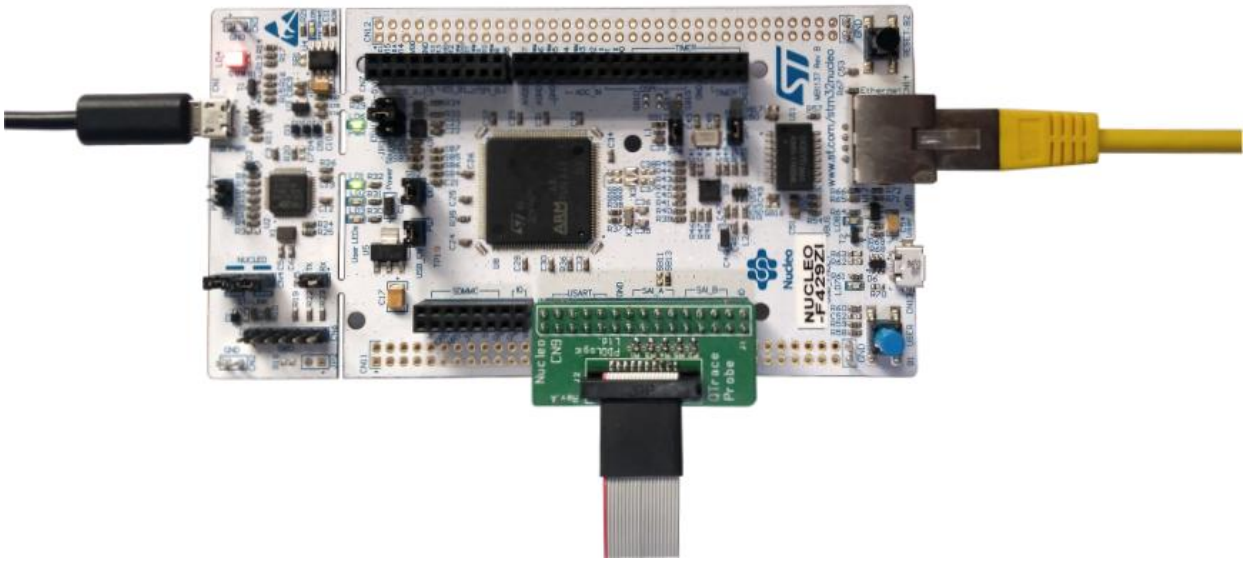
Pin	Port Signal
2	PD7
4	PD6
6	PD5
8	PD4
10	PD3
12	***0V***
14	***PE2 (Trace Clock)***
16	***PE4 (Trace D1)***
18	***PE5 (Trace D2)***
20	***PE6 (Trace D3)***
22	***PE3 (Trace D0)***
24	PF8
26	PF7
28	PF9
30	PG1

These signals are routed to the 20-way trace header

* depends on processor variant. Refer to the Nucleo-144 user manual for details (link on page 2)

Trace enabled Nucleo-144

Below are the connections used in the QTrace Nucleo quick-start guide:



For further details of the QTrace quick-start guide, see:
https://www.pdqlogic.com/documents/QTrace-Application-Note-005.pdf