Customer training workshop

TRAVEO™ T2G trigger multiplexer
Target products

Target product list for this training material:

<table>
<thead>
<tr>
<th>Family category</th>
<th>Series</th>
<th>Code flash memory size</th>
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<tbody>
<tr>
<td>TRAVEO™ T2G Automotive Body Controller Entry</td>
<td>CYT2B6</td>
<td>Up to 576 KB</td>
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<td>CYT2B7</td>
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<td>CYT2BL</td>
<td>Up to 4160 KB</td>
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<tr>
<td>TRAVEO™ T2G Automotive Body Controller High</td>
<td>CYT3BB/4BB</td>
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<td>CYT4BF</td>
<td>Up to 8384 KB</td>
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<td>CYT2CL</td>
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<td>CYT3DL</td>
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<td>TRAVEO™ T2G Automotive Cluster</td>
<td>CYT4DN</td>
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Trigger multiplexer overview

› The trigger multiplexer helps the user route triggers from a source peripheral block to a destination

› Features
  – Up to 16 multiplexer-based trigger groups
  – Up to 16 one-to-one trigger groups
  – Software (SW) trigger support to trigger any signal in the block

Review TRM section 29.1 for additional details
Trigger multiplexing

- A trigger input signal indicates the completion of a peripheral action or a peripheral event
- A trigger output signal initiates a peripheral action

**Hint Bar**
- Review TRM section 29.3 for additional details
- Refer to the datasheet for the trigger list for each device
- Trigger input:
  - Level sensitive: FIFO empty
  - Edge sensitive: ADC channel done
- Trigger output:
  - Invert

**Group Trigger**
- TCPWM_32_TR_OUT[0:7]
- PASS_GEN_TR_OUT[0:5]
- HSIOM_IO_INPUT[0:31]
- EVTGEN_TR_OUT[0:10]
  - Counter Reaches Preprogrammed Limit
  - ADC Complete
  - I/O Input Signals
  - Counter Reaches Preprogrammed Limit

**Start ADC**
- PASS_GEN_TR_IN[0:11]

**1-to-1 Trigger**
- SCB_TX_TR_OUT[0:7]
- EVTGEN_TR_OUT[3:10]
  - Transfer Done
  - Counter Reaches Preprogrammed Limit
  - Start Transfer
  - SCB_TX_TO_PDMA1[0:7]
  - Start LIN Message Transfer
  - EVTGEN_TO_LIN_TR[0:7]
A trigger multiplexer consists of multiple trigger groups, which are of two types:
- Group trigger
- 1-to-1 trigger

Review TRM section 29.3 for additional details.
Group trigger

› Functionalities
  – Connects a peripheral input trigger to multiple peripheral output triggers
  – Generates a SW trigger

SW Trigger

TCPWM_32_TR_OUT[0:7]
PASS_GEN_TR_OUT[0:5]
HSIOM_IO_INPUT[0:31]
EVTGEN_TR_OUT[0:10]

PASS_GEN_TR_IN[0:11]

Review TRM section 29.3 for additional details

Multiple peripheral output triggers are selected by the software
1-to-1 trigger

› Functionalities
- Connects a peripheral input trigger to one specific peripheral output trigger
- Generates a SW trigger

---

Hint Bar

Review TRM section 29.3 for additional details

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<thead>
<tr>
<th>SCB_TX_TR_OUT[0:7]</th>
<th>SCB_TX_TO_PDMA1[0:7]</th>
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<td>SW Trigger</td>
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<table>
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<th>EVTGEN_TR_OUT[3:10]</th>
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</table>
Use case: SW trigger

- SW trigger is written as one of the system triggers of a bit-encoded interrupt in P-DMA
  - P-DMA activation made through the SW trigger can enable the initial CRC on program data

Hint Bar

Review TRM section 29.4 for additional details
Refer to the Direct Memory Access Training section for additional details on P-DMA
Part of your life. Part of tomorrow.
## Revision history

<table>
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<tr>
<th>Revision</th>
<th>ECN</th>
<th>Submission Date</th>
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<tr>
<td>**</td>
<td>6086858</td>
<td>03/12/2018</td>
<td>Initial release</td>
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<td>*A</td>
<td>6385302</td>
<td>11/19/2018</td>
<td>Added page 2 and the note descriptions for all pages</td>
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<td>Updated pages 4, 6, and 7</td>
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<td>Deleted the Appendix section and TVII-B-E-1M Trigger pages</td>
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<td>*B</td>
<td>6649424</td>
<td>08/07/2019</td>
<td>Added note description to page 9</td>
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<td>*C</td>
<td>7048497</td>
<td>12/18/2020</td>
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<td>7400477</td>
<td>10/15/2021</td>
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