Datasheet Parameters
60802 Contribution

Astrit Ademaj

astrit.ademaj@tttech.com

Jan 2019
This presentation contains a list of parameters that need to be considered in the ‘Datasheet Parameters’ for 60802

• To have a structured way of defining the data sheet parameters
• Have a starting point – preliminary list
• The goal is to reduce the list to the absolute necessary parameters

The parameters shall be grouped for

• compliant bridges (also for bridged part of the bridged endstation)
• compliant endstations
Step 1 – Define the parameters, NOT the values

We should define which ‘Datasheet Parameters’, are needed, before discussing the parameters values.

**Example**: How long does it take for a frame to pass a bridge in worst case.

- **Vendor 1 provides**: 
  - Latency of Rx-Phy
  - Latency of bridge logic
  - Latency of Tx-Phy

- **Vendor 2 provides**: 
  - Wire to core latency
  - Core to wire latency

- **Vendor 3 provides**: 
  - Wire to Wire latency

Tools should not be confronted with different sets of input parameters for the same thing!
<table>
<thead>
<tr>
<th>Data rate</th>
<th>Value</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Mb/s</td>
<td>&lt; 30 µs</td>
<td>Bridge delay measure from MII to MII (^1)</td>
</tr>
<tr>
<td>100 Mb/s</td>
<td>&lt; 3 µs</td>
<td>Bridge delay measure from MII to MII (^1)</td>
</tr>
<tr>
<td>1 Gb/s</td>
<td>&lt; 1 µs</td>
<td>Bridge delay measure from RGMII to RGMII (^1)</td>
</tr>
<tr>
<td>2.5 Gb/s</td>
<td>&lt; 1 µs</td>
<td>Bridge delay measure from XGMII to XGMII (^1)</td>
</tr>
<tr>
<td>5 Gb/s</td>
<td>&lt; 1 µs</td>
<td>Bridge delay measure from XGMII to XGMII (^1)</td>
</tr>
<tr>
<td>10 Gb/s</td>
<td>&lt; 1 µs</td>
<td>Bridge delay measure from XGMII to XGMII (^1)</td>
</tr>
<tr>
<td>25 Gb/s – 1 Tb/s</td>
<td>&lt; 1 µs</td>
<td>Bridge delay measure from XGMII to XGMII (^1)</td>
</tr>
</tbody>
</table>
The values are not aligned with the bridge delay parameters description in 802.1Qcc

Does not contain the delay parameters for ports with different communication speed
(e.g., input port is 100Mbit/s and output port is 1Gbit/s port)
Different “level” of capabilities/parameters

- **Feature level:**
  - Protocols, e.g., NETCONF,…
  - Mechanisms, e.g., Qbv,…

- **Parameter (Detailed) level:** contains parameters like, e.g.
  - switch delay parameters (e.g., dependentDelayMin/Max,…), …
  - number of gates in the gate control list,…

- Parameters at the “**Parameter (Detailed) level**” shall comply with the existing managed objects and/or YANG models
  - exception are possible for parameters for which no managed objects exists, like: frame buffer size
Feature level – Protocols

- **Management Protocols:**
  - NETCONF
  - RESTCONF
  - SNMP V1,…
  - SRP, MSRP, RAP,…

- **Clock Synchronization:**
  - IEEE 1588 v1,…
  - IEEE 1588 power profile
  - IEEE 802.1AS(Rev)
  - Roles (master, slave)

- **Others**
  - LLDP
  - STP, RSTP,…

- **Security**
  - 802.1X
Feature level – Mechanisms

- Qbv
- Qbu
- 1CB
- Qav
- Qci
- Qch
- Qcr
- …

- Sequencing
- Splitting
- Recovery
- Time Policing
- Rate policing
- Burst policing
- Length policing

- Number of Queues
- Cut-through (future)
- Security
- MACsec
Device parameters

- Max Nr of VLANs
- VLAN, retagging, removing, adding
- Number of queues
- Max number of queue entries
- dependentDelayMin/Max (per port combination and per speed)
  - Incl PHY delays
- independentDelayMin/Max (per port combination and per speed)
- Frame buffer
- Frame chunk granularity

- Max No of Streams
- Number of per-stream filtering and policing entries
- Supported number of dest. MAC entries in the FDB
- Supported Stream Identification functions
  - NULL stream
  - Source MAC and VLAN
  - Active Destination MAC and VLAN
  - IP Stream identification
  - P802.1CBdb
- Qbu - Minimum fragment size
Per Port Parameters

- Qbv
  - Max No of Gate Events
  - Min/Max AdminCycleTime
  - Tick granularity

- 1CB
  - Sequencing
  - Splitting
  - Recovery
Feature level – per device

- **Management Protocols:**
  - SNMP V1,…
  - SRP, MSRP, RAP,…
  - CUC support (PTCC)

- **Clock Synchronization:**
  - IEEE 1588 v1,…
  - IEEE 1588 power profile
  - IEEE 802.1AS(Rev)
  - Roles (master, slave)

- **Datasheet Parameters**:
  - Qbv
  - Qbr
  - 1CB
  - Qav
  - …
Endstation: Parameters (Detailed) Level - Datasheet Parameters

**Device parameters**

- VLAN capable (VID insertion capability)
- Number of queues
- Max number of queue entries
- Tx/Rx delay, Incl PHY delays
- Tx/Rx jitter, Incl PHY jitter
- Frame buffer
- Frame chunk granularity
- Tick granularity

**Per Port Parameters**

- Qbv
  - Max Gate Events
  - Min/Max AdminCycleTime
- Supported Stream Identification functions
  - NULL stream
  - Source MAC and VLAN
  - Active Destination MAC and
  - IP Stream identification
  - P802.1C/0db
- Qbu
  - Minimum supported fragment size