RENESAS TECHNICAL UPDATE

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Product Category	MPU/MCU			Document No.	TN-RA*-A0102A/E	Rev.	1.00
Title	RA6M5 Group, correction of CANFD			Information Category	Technical Notification		
Applicable Product	RA6M5 Group	Lot No.		Reference Document	RA6M5 Group User's Manual Hardware Rev.1.30		
		All					

The descriptions of CANFD are corrected.

1. The maximum baud rate for data transfer rates is corrected from 8Mbps to 5Mbps.
2. The note in Table 32.14 Bit timing examples is removed.

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1-1 32.1.1 CAN-FD Module

Table 32.1   CAN-FD module specifications (1 of 2)

Parameter	Specifications
Communication	CAN functionality conforms to CAN-FD ISO 11898-1 (2015)
Gateway function	CAN 2.0 ↔ CAN 2.0 CAN 2.0 ↔ CAN-FD gateway (only 8-byte payload)[*1] CAN-FD ↔ CAN-FD[*1]
Data transfer rate	Up to 1 Mbps for arbitration phase and up to 8 Mbps for data phase, individually for each CAN channel

[Before]

[After]

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1-2   32.4.1.3 Baud Rate

[Before]

Table 32.16   Baud rate calculation example for nominal and data bit rate CAN communication configurations

Baud rate calculation formula	(DLL clock) (baud rate prescaler divide-by-N value[1]) × (number of TQs in one bit)	
	40 MHz	**20 MHz**
Nominal 1 Mbps Data 8 Mbps	40TQ (1)	20TQ (1)
	5TQ (1)	Not possible
Nominal 1 Mbps Data 5 Mbps	40TQ (1)	20TQ (1)
	8TQ (1)	Not possible
Nominal 500 Kbps Data 2 Mbps	80TQ (1)	40TQ (1)
	20TQ (1)	10TQ (1)

[After]

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1-3   32.4.1.5 Transmitter Delay Compensation

[Before]

This chapter is not valid for classical CAN.

When a high baud rate is used such as 5 to 8 Mbps for the data phase, the transmitter delay can become greater than TSEG1. In this case, the transmitter always detects a bit-error in the data phase of the CANFD frame. The TDC compensates for the inability of the transmitter to receive its own transmitted bit at the sample point of that bit.

[After]

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2. The note in Table 32.14 Bit timing examples is removed.

32.4.1.1 Bit Timing Conditions

[Before]

Table 32.14   Bit timing examples

1 bit	Set value (TQ)				Sample point[1](%)
	SS	TSEG1	TSEG2	SJW	
5TQ	1	2	2	1	60.00
8TQ	1	4	3	1	62.50
	1	5	2	1	75.00
10TQ	1	6	3	1	70.00
	1	7	2	1	80.00
12TQ	1	8	3	1	75.00
	1	9	2	1	83.33
15TQ	1	10	4	1	73.33
	1	11	3	1	80.00
16TQ	1	10	5	1	68.75
	1	11	4	1	75.00
20TQ	1	12	7	1	65.00
	1	13	6	1	70.00
24TQ	1	15	8	1	66.66
	1	16	7	1	70.83
50TQ	1	39	10	4	80.00

Note 1.   Sample point (in case of 75%)

[After]

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