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Product Category	MPU&MCU	Document No.	TN-SH7-A545A/E	Rev.	1.0
Title	Notes on Transfer Rate in I ² C Bus Interface of the SH7144 Group	Information Category	Technical Notification		
Applicable Product	·SH7144 Group HD6417144, HD6437144 and HD64F7144	Lot No.	Reference Document	SH7144 Group Hardware Manual (REJ09B0108-0300Z Rev.3.00)	
	·SH7145 Group HD6417145, HD6437145 and HD64F7145	All			

In master mode operation of the I²C bus interface of the SH7144 Group and SH7145 Group, following attention is required to set the Transfer Rate.

1. Target Module

I²C bus interface

2. Restriction

Table 1 shows the setting of the Transfer Rate (Table 14.3 of the Hardware Manual).

When IICX is 0 and the peripheral clock P ϕ is over 16MHz, the Transfer Rate could be lower than the setting value depending on the load condition. Please set IICX to 1 in case that P ϕ is over 16 MHz.

Table 1 Setting of the Transfer Rate

SCRX Bit5	ICMR			Clock	Transfer Rate					
	Bit5 CKS2	Bit4 CKS1	Bit3 CKS0		P ϕ =10MHz	P ϕ =16MHz	P ϕ =20MHz	P ϕ =25MHz	P ϕ =33MHz	P ϕ =40MHz
0	0	0	0	P ϕ /28	357kHz	571kHz	714kHz	893kHz	1.18MHz	1.43MHz
			1	P ϕ /40	250kHz	400kHz	500kHz	625kHz	825kHz	1.00MHz
		1	0	P ϕ /48	208kHz	333kHz	417kHz	521kHz	688kHz	833kHz
			1	P ϕ /64	156kHz	250kHz	313kHz	391kHz	516kHz	625kHz
	1	0	0	P ϕ /80	125kHz	200kHz	250kHz	313kHz	413kHz	500kHz
			1	P ϕ /100	100kHz	160kHz	200kHz	250kHz	330kHz	400kHz
		1	0	P ϕ /112	89.3kHz	143kHz	179kHz	223kHz	295kHz	357kHz
			1	P ϕ /128	78.1kHz	125kHz	156kHz	195kHz	258kHz	313kHz
1	0	0	0	P ϕ /56	179kHz	286kHz	357kHz	446kHz	589kHz	714kHz
			1	P ϕ /80	125kHz	200kHz	250kHz	313kHz	413kHz	500kHz
		1	0	P ϕ /96	104kHz	167kHz	208kHz	260kHz	344kHz	417kHz
			1	P ϕ /128	78.1kHz	125kHz	156kHz	195kHz	258kHz	313kHz
	1	0	0	P ϕ /160	62.5kHz	100kHz	125kHz	156kHz	206kHz	250kHz
			1	P ϕ /200	50.0kHz	80.0kHz	100kHz	125kHz	165kHz	200kHz
		1	0	P ϕ /224	44.6kHz	71.4kHz	89.3kHz	112kHz	147kHz	179kHz
			1	P ϕ /256	39.1kHz	62.5kHz	78.1kHz	97.7kHz	129kHz	156kHz