

# RENESAS TECHNICAL UPDATE

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Product Category	System LSI		Document No.	TN-RIN-A002A/E	Rev.	1.00
Title	Additional guideline on external Ethernet PHY selection		Information Category	Technical Notification		
Applicable Product	R-IN32M3-CL	Lot No.	Reference Document	R-IN32M3 Series User's Manual R-IN32M3-CL (R18UZ0005EJ0601) R-IN32M3 Series User's Manual Peripheral Functions R-IN32M3-CL R-IN32M3-EC (R18UZ0007EJ0202)		
		All lots				

Information about restriction on external Ethernet PHY device selection for R-IN32M3-CL.

## 1. Condition

When using **10Base-T half-duplex mode**

## 2. Restriction

10Base-T half-duplex Ethernet PHY may support and operate in the 2 following modes:

1. Transmitted frame from MII is propagated to MDI and looped back to MII
2. Transmitted frame from MII is propagated to MDI

Selected Ethernet PHY for R-IN32M3-CL shall operate in mode 2. They shall thus either:

- Be able to disable the loopback function by register setting

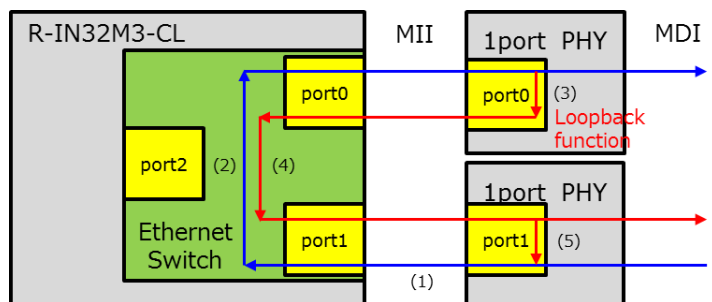
or

- Not support the loopback function on 10Base-T half-duplex mode.

## 3. Background

When using Ethernet PHY which supports loopback function, the following behavior has a potential to cause an endless frame transfer between Ethernet ports.

- (1) Port1 on R-IN32M3-CL receives a frame
- (2) Ethernet switch in R-IN32M3-CL forwards the frame to port0
- (3) Ethernet PHY for port0 transmits the frame not only to MDI but also to MII (Loopback)



- (4) Ethernet switch in R-IN32M3-CL receives the looped-back frame from PHY and forwards it to port1
- (5) Ethernet PHY for port1 transmits the frame to MDI and loops back it to MII
- (6) Repeats (2) – (5)

The restriction removes this concern.

Please confirm with Ethernet PHY vendor the following things for your vendor selection.

- Loopback function availability on 10Base-T half-duplex mode
- Supports disabling capability for loopback function by register (If loopback function is supported)