1000BASE-T
AutoNegotiation & Link Criteria

IEEE 802.3ab Meeting
San Jose, California

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OVERVIEW

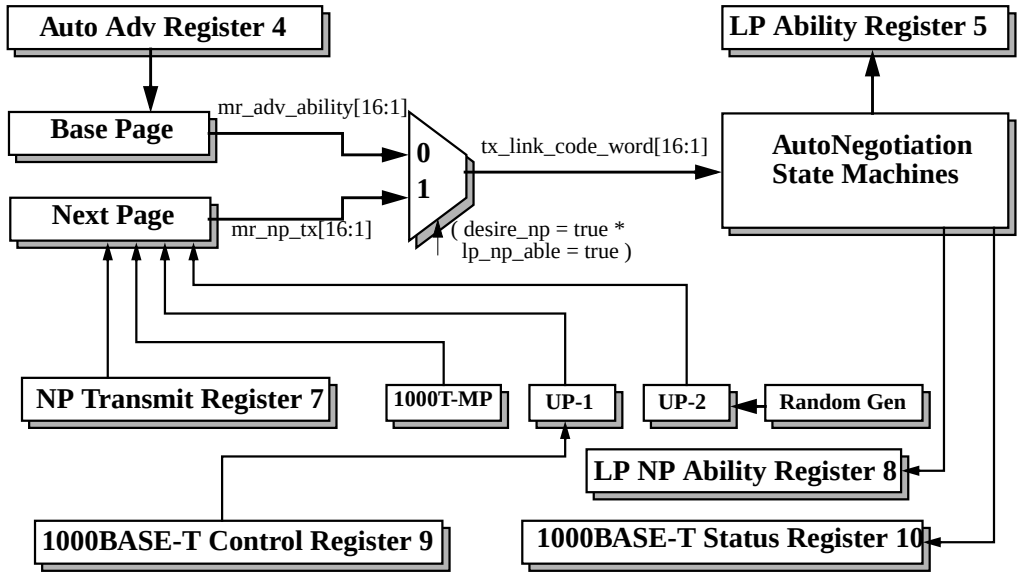
- 1000BASE-T AutoNegotiation Using Next Page
- HCD and Master-Slave Resolution
- 1000BASE-TX Link Criteria
- Review Of 100BASE-T Link Criteria

1000BASE-T AutoNegotiation

- Utilizes/requires existing Autonegotiation mechanism already defined in clause 28
- Utilizes/requires next page function already defined in clause 28
- Fully backwards compatible with all previous 10/100 autonegotiation devices
- Adds one message page and two unformatted pages of information
- Adds two additional registers (9 and 10)-shared with 100Base-T2
- 1000Base-T message exchange does not require external processor intervention

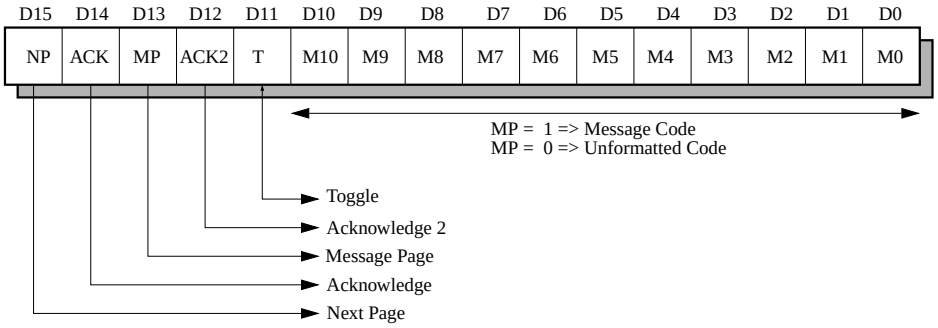
LEVEL ONE

1000BASE-T Auto Negotiation

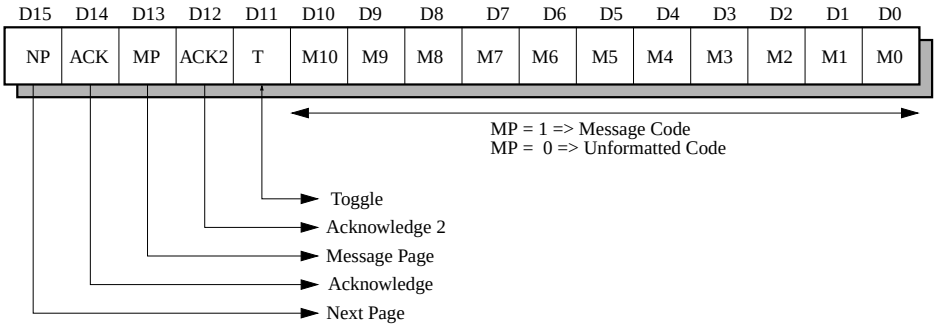


LEVEL ONE

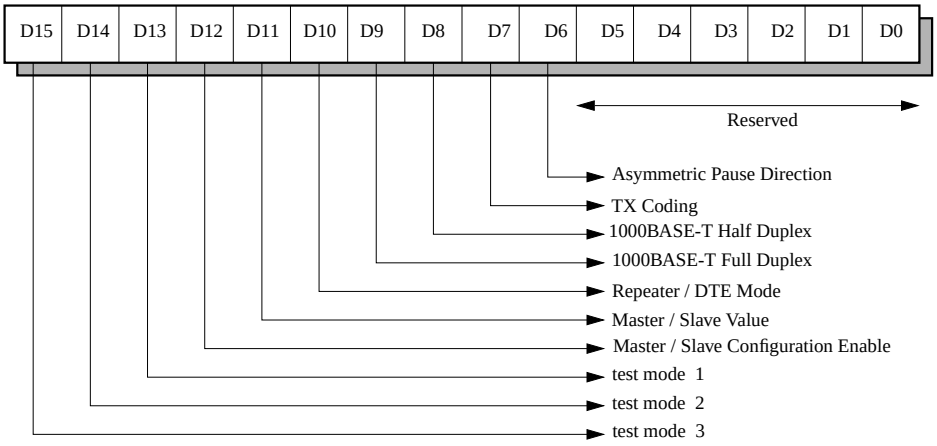
Next Page Transmit Register (Address 7)



LP Next Page Ability Register (Address 8)

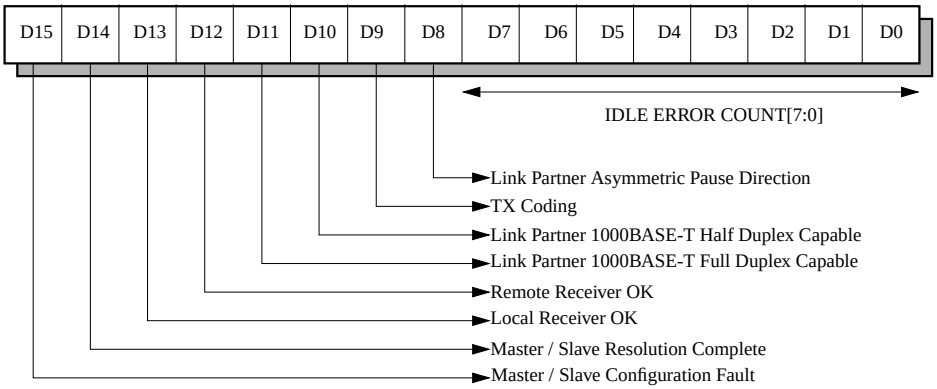


1000BASE-T Control Register (Address 9)



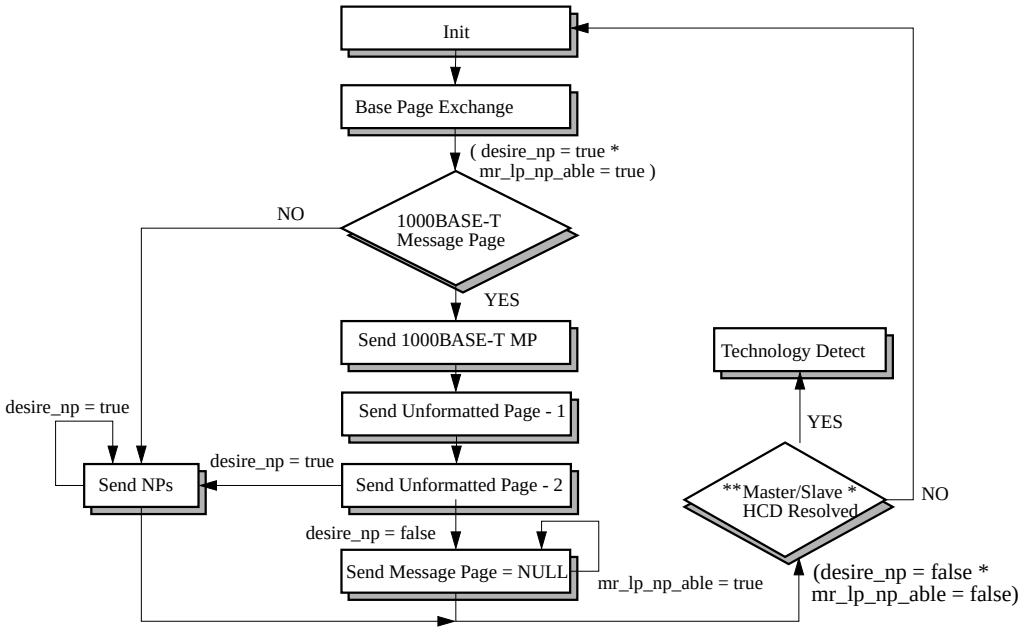
LEVEL ONE

1000BASE-T Status Register (Address 10)



LEVEL ONE

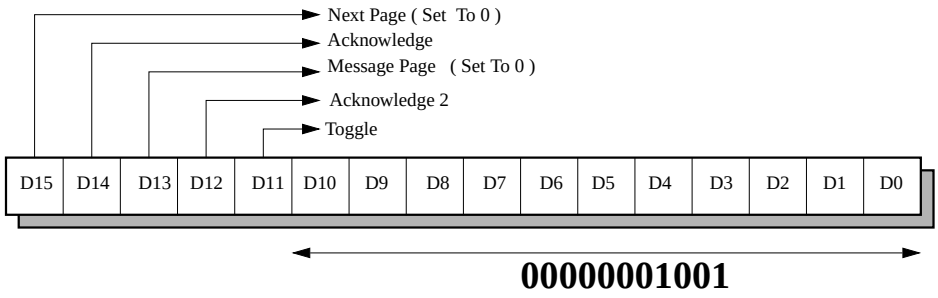
1000BASE-T AutoNegotiation



Note: Software is responsible for NULL Page if additional NPs are sent. ** Only valid if the HCD is 1000T else pass

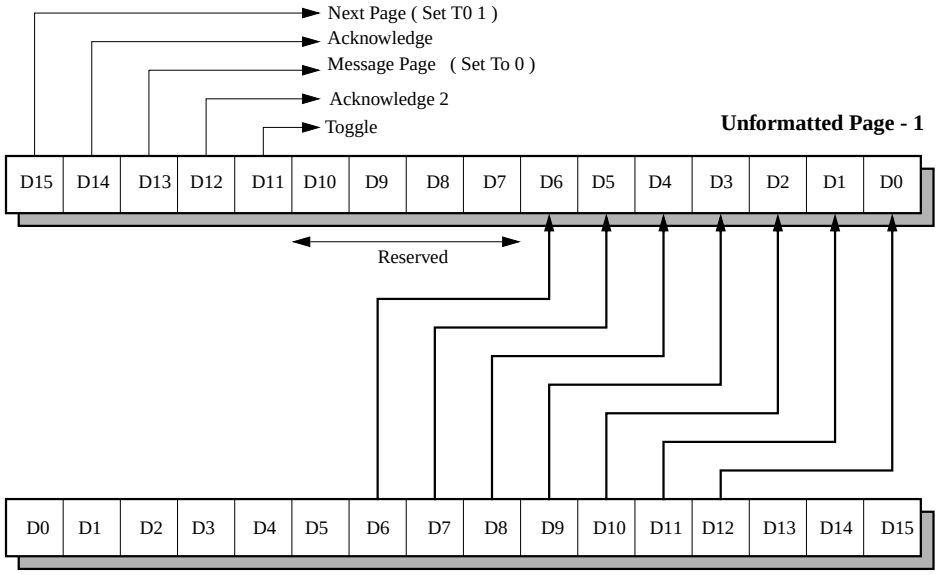
LEVEL ONE

1000BASE-T Message Page



LEVEL ONE

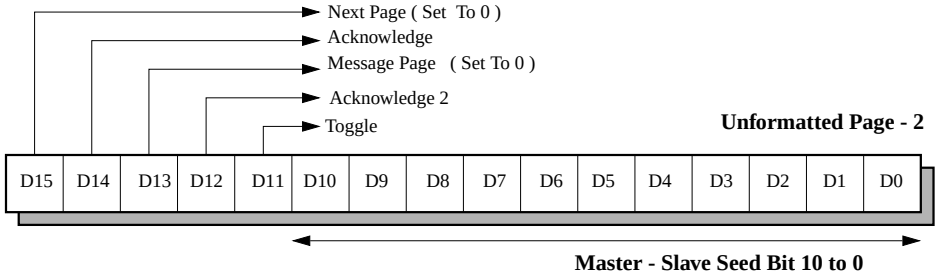
Unformatted Page - 1 Encoding



1000BASE-T Control Register (Address 9)

LEVEL ONE

Unformatted Page - 2 Encoding



LEVEL ONE

HCD Resolution

- Highest Common Denominator is determined using the following Priority Table.

Table 1: Priority Table

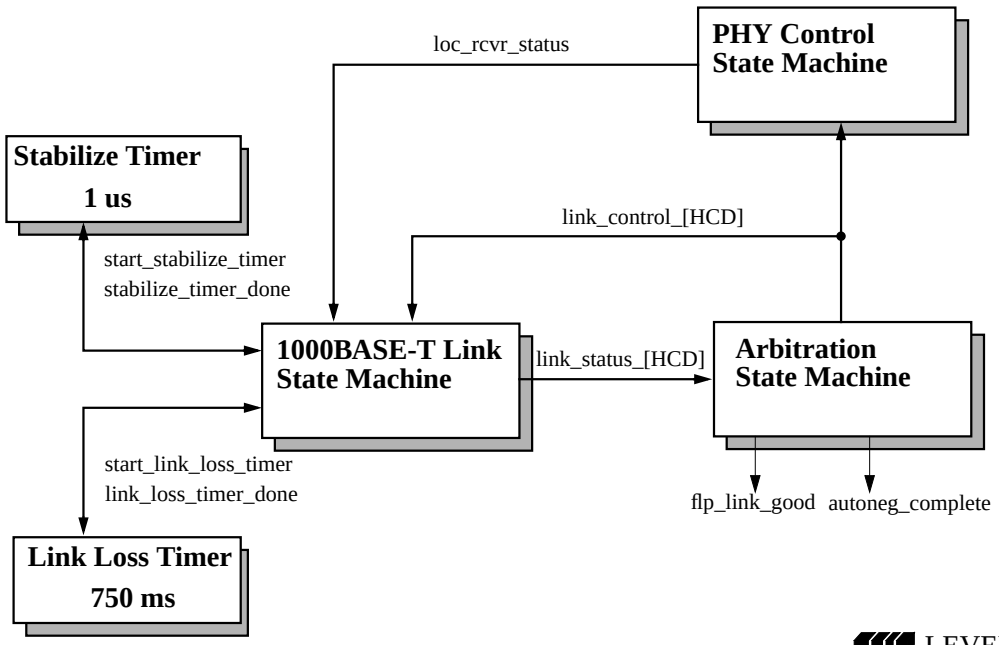
Priority Level	Technology
a ** (Highest)	1000BASE-T Full Duplex
b	1000BASE-T Half Duplex
c	100BASE-T2 Full Duplex
d	100BASE-TX Full Duplex
e	100BASE-T2 Half Duplex
f	100BASE-T4
g	100BASE-TX Half Duplex
h	10BASE-T Full Duplex
i (Lowest)	10BASE-T Half Duplex

Master-Slave Resolution

Table 2: 1000BASE-T MASTER-SLAVE Resolution

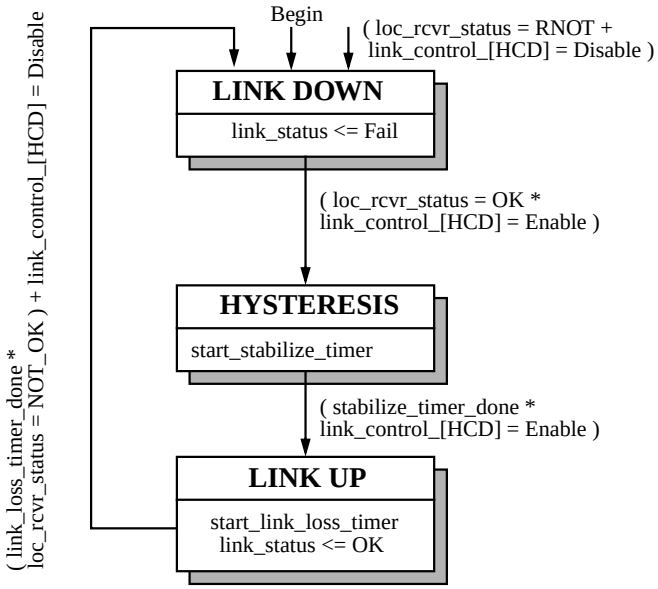
		Resolution	Resolution
Local Device Type	**Remote Device Type**	**Local Device**	**Remote Device**
DTE	Repeater	SLAVE	MASTER
Manual Slave	Manual Master	SLAVE	MASTER
Repeater	Manual Master	SLAVE	MASTER
Manual Slave	DTE	SLAVE	MASTER
Repeater	DTE	MASTER	SLAVE
Manual Master	Manual Slave	MASTER	SLAVE
DTE	Manual Slave	MASTER	SLAVE
Manual Master	Repeater	MASTER	SLAVE
Repeater	Repeater	The higher SEED value is configure as MASTER, otherwise SLAVE	The higher SEED value is configure as MASTER, otherwise SLAVE
DTE	DTE	The higher SEED value is configure as MASTER, otherwise SLAVE	The higher SEED value is configure as MASTER, otherwise SLAVE
Manual Slave	Manual Slave	MASTER-SLAVE Resolution Fault	MASTER-SLAVE Resolution Fault
Manual Master	Manual Master	MASTER-SLAVE Resolution Fault	MASTER-SLAVE Resolution Fault

1000BASE-T Link Criteria



LEVEL ONE

1000BASE-T Link Criteria (continued)



LEVEL ONE

Review Of 100BASE-TX Link Criteria