



MPoE Discovery Extensibility

Michael Paul

analog.com

Introduction

In this presentation I will discuss adding a bit to discovery

The new bit will signal whether the data read during discovery is for T1M or if the data should be interpreted differently

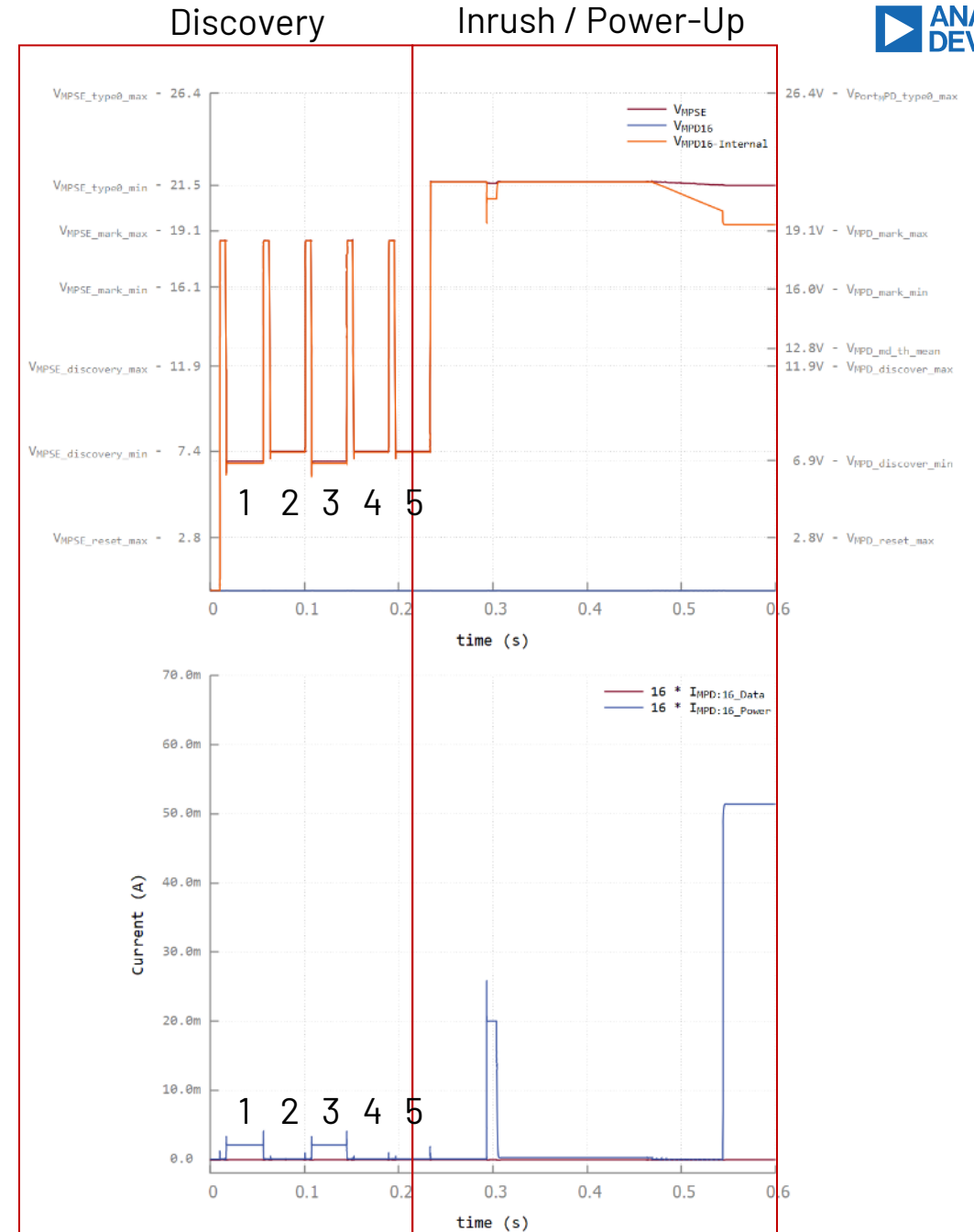
This will allow us to reuse Clause 189 for future standards

MPoE Discovery Present Implementation

- Discovery
 - Look for open, short, or device requesting power
 - Loads (MPDs) perform a controlled startup after discovery
 - MPSE toggles voltage
 - MPDs respond with current

Table 189–8—MPD response to DISCOVERx events

DISCOVERx Event 1	DO_DISCOVERY1				
DISCOVERx Event 2	DO_DISCOVERY2				
DISCOVERx Event 3	DISCOVERY_LOW_TYPE_0				
DISCOVERx Event 4	DISCOVERY_LOW_TYPE_1				
DISCOVERx Event 5	DISCOVERY_LOW_TYPE_MIXED				
Discovery event:	1	2	3	4	5
Type 0	1	0	1	0	0
Type 1	1	0	0	1	0
Type Mixed	1	0	0	0	1



Extending Discovery Event Meaning

Discovery State	MPoE T1M (Multidrop)	Future
DISCOVERYx EVENT 1		DO_DISCOVERY1
DISCOVERYx EVENT 2		DO_DISCOVERY2
DISCOVERYx EVENT 3	DISCOVERY_LOW_TYPE_0 (24V?)	Not assigned
DISCOVERYx EVENT 4	DISCOVERY_LOW_TYPE_1 (48V?)	Not assigned
DISCOVERYx EVENT 5	DISCOVERY_LOW_TYPE_MIXED	Not assigned
DISCOVERYx EVENT 6	0 = DA	1 = Extended
DISCOVERYx EVENT 7	DA Extended	Not assigned
DISCOVERYx EVENT 8	DA Extended	Not assigned
DISCOVERYx EVENT n	DA Extended	Not assigned

Insert extra bit at DISCOVERYx EVENT 6 for future extension

MPSE State Machine Modification

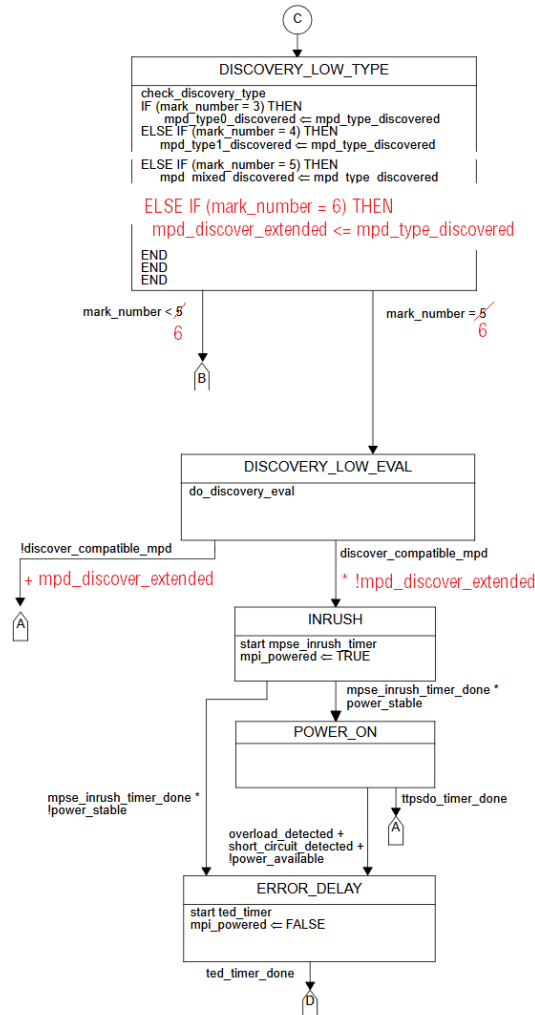


Figure 189-4—Top level MPSE state diagram, part b

Add to Variables Section

189.4.4.2 Variables

mpd_discover_extended

A variable that indicates an MPD requesting extended discovery is connected to the mixing segment.
 Values: FALSE: No valid MPDs requesting extended discovery are connected to the mixing segment.
 TRUE: At least one valid MPD is requesting extended discovery.

MPD State Machine Modification (no change)

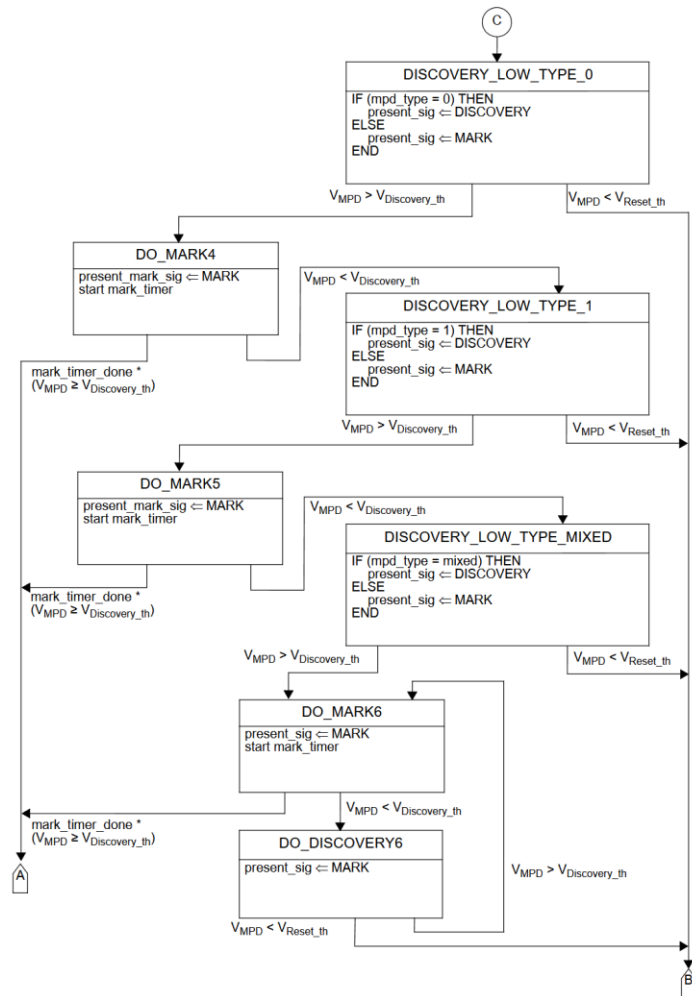


Figure 189-7—Top level MPD state diagram continued, part b

T1M MPDs always respond '0' after Mark 5

Conclusion

Add 6th event to discovery

Bit6 = 0 signals that the information was for T1M multidrop

If there is a need to pass further information for T1M multidrop in the future, bits 7+ can be used

If there is a need to use Clause 189 power protocol with other data standards:

Set bit6 = 1, then more data can be encoded in bits 7+ and all discovery data can be interpreted differently than it was for T1M