

The transmitting window of an ONU is indicated in the GATE message where start time and length are specified. An ONU begins transmission when its localTime counter matches the start_time value indicated in the GATE message. An ONU concludes its transmission with sufficient margin to ensure that the laser is turned off before the grant length interval has elapsed.

Multiple outstanding grants may be issued to each ONU. The OLT shall not issue more than the maximum supported maximum outstanding grants as advertised by the ONU during registration (see pending grants in 77.3.6.3).

In order to maintain the watchdog timer at the ONU, grants are periodically generated. For this purpose empty GATE messages may be issued periodically.

When registered, the ONU ignores all gate messages where the Discovery flag is set.

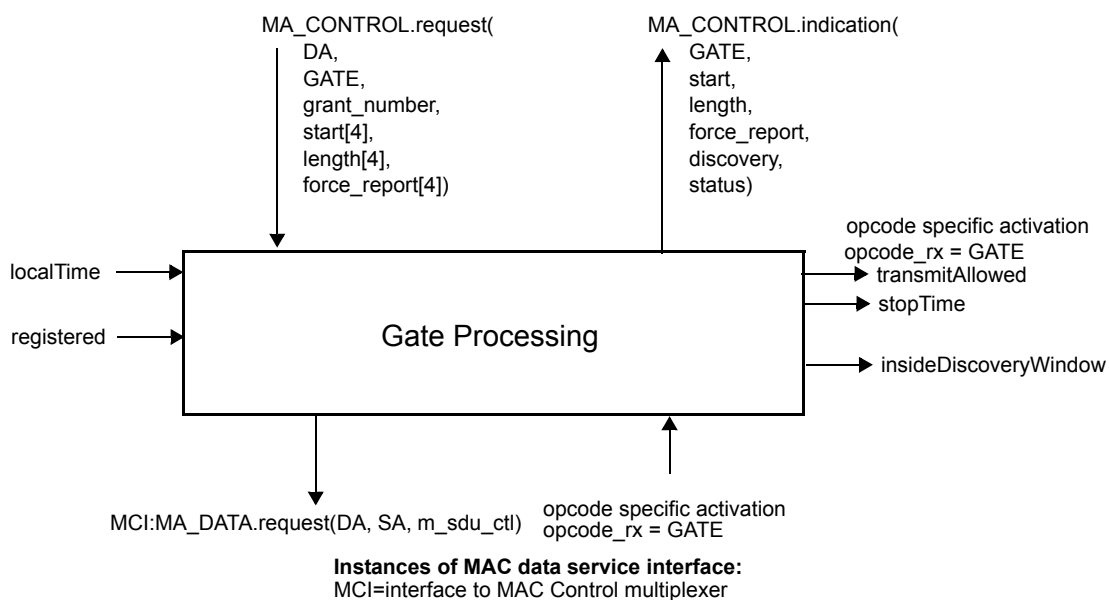


Figure 77-1—Gate Processing Service Interface

77.0.0.1 Constants

~~discoveryGrantLength~~
 TYPE: 32-bit unsigned
 This constant represents the duration of ONU's transmission during discovery attempt. ~~discoveryGrantLength is equal to one FEC codeword (see FEC_CODEWORD_SIZE in 77.2.2.1) expressed in units of time_quanta.~~
 VALUE: 13

gate_timeout
 TYPE: 32-bit unsigned
 This constant represents the maximum allowed interval of time between two GATE messages generated by the OLT to the same ONU.
 VALUE: 0x002FAF08 (50 milliseconds)

max_future_grant_time	1
TYPE: 32 bit unsigned	2
This constant holds the time limiting the future time horizon for a valid incoming grant.	3
VALUE: 0x03B9ACA0 (1 second)	4
	5
min_processing_time	6
TYPE: 32 bit unsigned	7
This constant is the time required for the ONU processing time.	8
VALUE: 0x00000400 (16.384 us)	9
	10
<u>minGrantLength</u>	11
<u>TYPE: 32 bit unsigned</u>	12
<u>This constant represents the minimum data portion of a grant. The minGrantLength is equal to one</u>	13
<u>FEC codeword (see FEC_CODEWORD_SIZE in 77.2.2.1), less the initial 16 idle octets, expressed</u>	14
<u>in units of time_quanta. The minimum grant length accepted by an ONU is equal to</u>	15
<u>minGrantLength + BurstOverhead (see 77.3.5.2).</u>	16
<u>VALUE: 12</u>	17
	18
tqSize	19
This constant is defined in 77.2.2.1.	20
	21
77.0.0.2 Variables	22
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BEGIN	24
TYPE: Boolean	25
This variable is used when initiating operation of the functional block state diagram. It is set to true	26
following initialization and every reset.	27
	28
BurstOverhead	29
TYPE: integer	30
This variable represents the burst overhead and equals the sum of laserOnTime, laserOffTime,	31
syncTime and an additional two time_quanta to account for END_BURST_DELIMITER and two	32
leading IDLE vectors of the payload. This variable is expressed in units of time_quanta.	33
	34
counter	35
TYPE: integer	36
This variable is used as a loop iterator counting the number of incoming grants in a GATE message.	37
	38
currentGrant	39
TYPE:	40
structure	41
{	42
DA: 48 bit unsigned, a.k.a MAC address type	43
start 32 bit unsigned	44
length 16 bit unsigned	45
force_report Boolean	46
discovery Boolean	47
}	48
This variable is used for local storage of a pending grant state during processing. It is dynamically	49
set by the Gate Processing functional block and is not exposed.	50
The state is a structure field composed of multiple subfields.	51
	52
data_rx	53
This variable is defined in 77.2.2.3.	54

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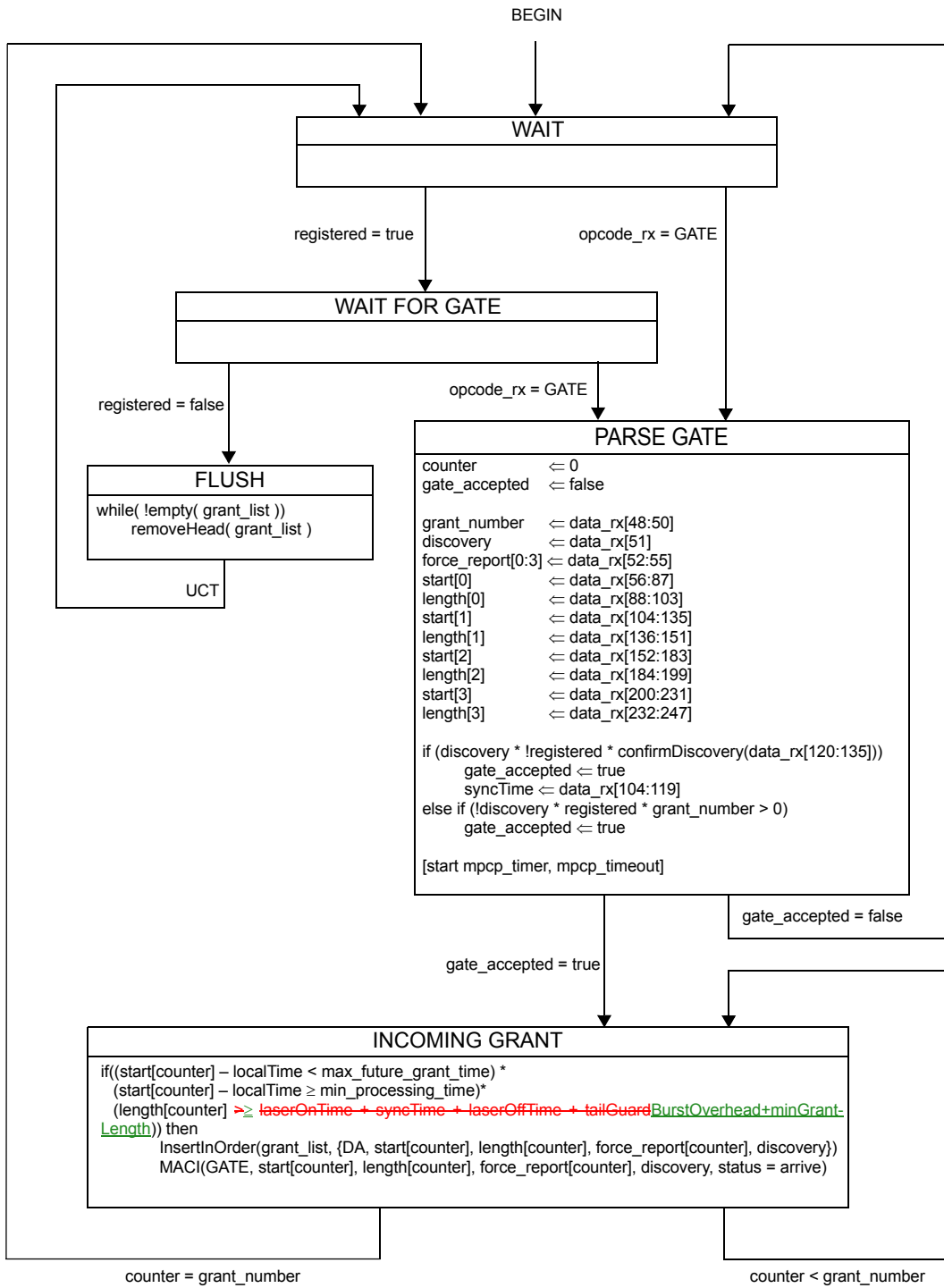


Figure 77-2—Gate Processing ONU Programming state diagram

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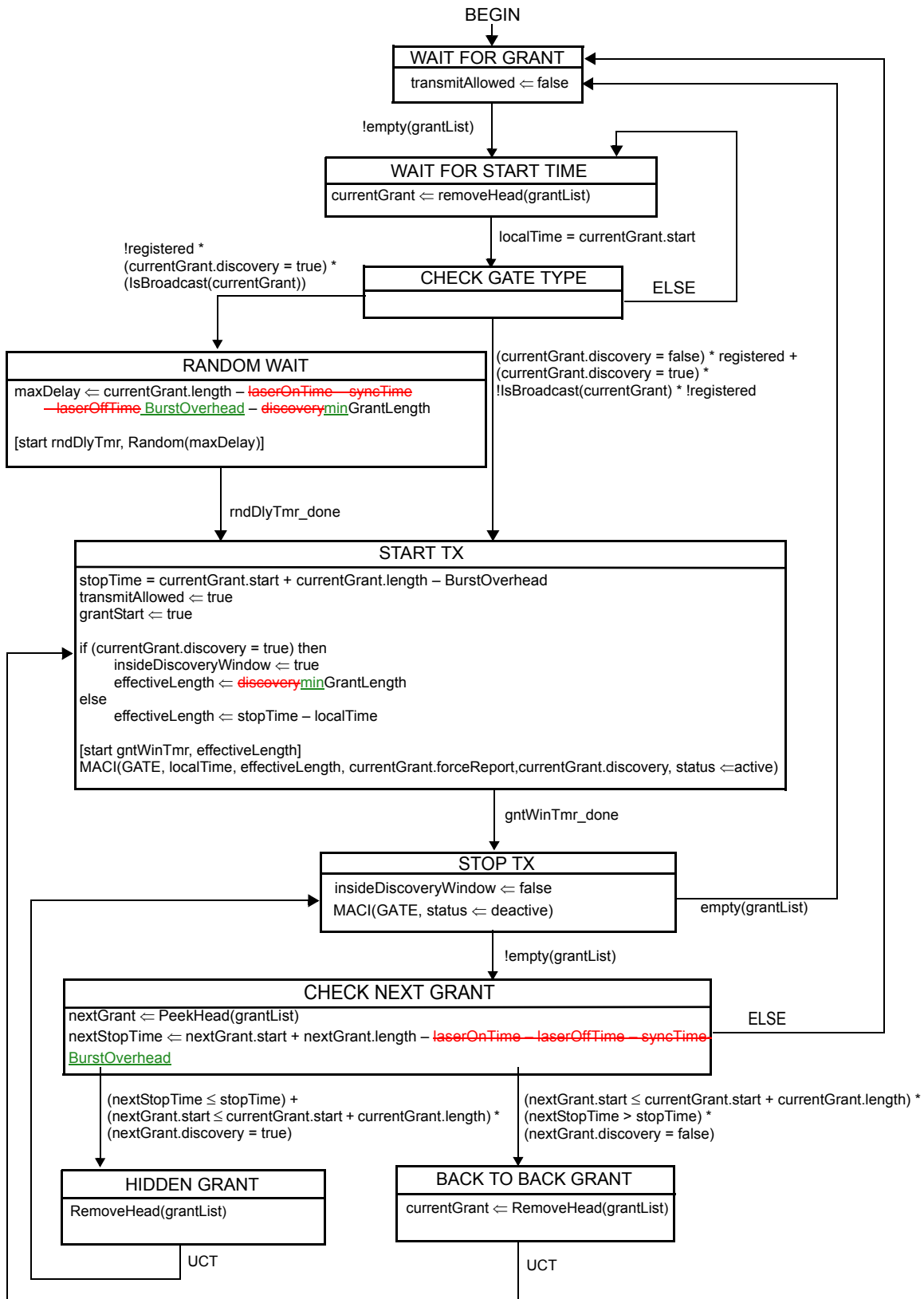


Figure 77-3—Gate Processing ONU Activation state diagram