MEMORY PN CHECK PROGRAM TO CONFIRM PN IS CORRECT OR NOT FROM DIMM AND BIOS

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Memory PN check program to confirm PN is correct or not from DIMM and BIOS

Abstract
Qualification and production meet several time for On board memory and module type memory show wrong model name on F2 diag test. Memory PN check program will compare the memory PN from qual matrix and show the error message when memory PN is not the same as qaul matrix. For service, it can show it's not provider AVL parts when user use memory that’s not qualify and warming for end user.

Introduction
F2 diag memory PN check is handle by human and it's sampling. When vendor shipping the memory that PN of SPD table is incorrect, it might be not 100%. And sometime SPD may re-write by unexpected used, sampling is hard to find all of wrong PN. For on board, SPD is typing into BIOS. It also can help BIOS Engineer to check it. not highlight from QA to reduce this debug process.

Discussion
F2 diag check the memory PN from SPD that is from EEPROM of DIMM type memory and BIOS of on board type.

Figure 1: F2 Diag memory model name
The memory qualification plan is following qualification matrix from Pulsar system that has memory PN information.

![Bucks - 3C17 Hardware Qualification](image)

**Figure2:** Qualification matrix from Pulsar.

For DIMM type, upload the PN from qualification matrix from Pulsar to some area of BIOS (or somewhere can save memory PN) and doing the comparison between qualification matrix PN and F2’s PN, like checksum. If F2’s PN can match either one from qualification matrix, it’s issue.

For on board type, the F2’s PN is catch from SPD of BIOS, the compare data is the same as DIMM type.

On the other hand, on board may check with memory ID table that is define memory type by each GPIO pin setting.

![MEMORY_ID_TABLE](image)

when system boot up, system will auto compare it. If the PN of Inserted SO-DIMM or BIOS setting can’t match with one of PN of qualification matrix, it will show error message.
It also can help to detect non-qualified memory in production line when product mix that was qualified fail or un-qualified. For service center, it can easy to judge the issue when memory is not from provider.

Remark: Error message may show it’s not AVL memory, provider is not responded for this memory issue.

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