



SM2258XT Flash F/W & ISP Release Information – R0817A0 for TSB BiCS3 only

Introduction

This purpose of this document is to provide release information on the SM22X family F/W and ISP release information

Fix Coverage

- stands for the “new fix” or “new support” in the category
- stands for the “no-update” in the category

<input checked="" type="checkbox"/> <b>MP Tool</b>	<input checked="" type="checkbox"/> <b>Controller ISP</b>
<input type="checkbox"/> <b>Yield Issue</b> <input type="checkbox"/> <b>Flash Issue</b> <input checked="" type="checkbox"/> <b>3D TLC Flash</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Samsung Flash</li> <li><input checked="" type="checkbox"/> Toshiba/Sandisk Flash</li> <li><input type="checkbox"/> Intel/Micron Flash</li> <li><input type="checkbox"/> Hynix Flash</li> <li><input type="checkbox"/> Others</li> </ul> <input checked="" type="checkbox"/> <b>MP Tool Bug Fix</b> <input checked="" type="checkbox"/> <b>MP Tool New Function</b> <input type="checkbox"/> <b>Feature Enhance</b>	<input type="checkbox"/> <b>Yield Issue</b> <input type="checkbox"/> <b>Flash Issue</b> <input checked="" type="checkbox"/> <b>3D TLC Flash</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Samsung Flash</li> <li><input checked="" type="checkbox"/> Toshiba/Sandisk Flash</li> <li><input type="checkbox"/> Intel/Micron Flash</li> <li><input type="checkbox"/> Hynix Flash</li> <li><input type="checkbox"/> Others</li> </ul> <input checked="" type="checkbox"/> <b>ISP Bug Fix</b> <input type="checkbox"/> <b>Feature Enhance</b>



## ISP Revision History

Version	MP Tool version	RDТ version	Note
R0817A0	R0825A	R0821A0	<p>ISP: <b><i>(This FW just support Toshiba-BiCS3 only)</i></b></p> <ol style="list-style-type: none"> <li>1. Add TSB Bics3 retry table.</li> <li>2. Change TSB retry table tag.</li> <li>3. Fix Toshiba 64G die 3072 block bug.</li> <li>4. Decrease Flash Clock when thermal throttle enable.</li> <li>5. Sync read scrub/reclaim break in read flow.</li> <li>6. Fix bgd gc search no src from tlc region.</li> <li>7. Fix recursive progwpro.</li> <li>8. Fix restore cache info when cache info full case.</li> <li>9. Fix restore cache info when cache info full case.</li> <li>10. Fix Ulink script 6.0 fail item PwrMgt and Sanitize item.</li> <li>11. Modified when setting fix temperature option thermal throttling doesn't work issue.</li> </ol> <p>RDT:</p> <ol style="list-style-type: none"> <li>1. Fix a bug which issue 0xFD CMD to invalid CE lead to hanging.</li> </ol> <p>MPTool:</p> <ol style="list-style-type: none"> <li>1. Modify Vendor Specific string to fill one 0x20 for one word.</li> <li>2. Add WWN/Model Name update at SNChanger Tool.</li> <li>3. Add Thermal Throttling option.</li> <li>4. Add "MPTool showing Diff Levels &amp; Colors" request.</li> <li>5. Add special Badblock counts display rule.</li> <li>6. Modify checksum mismatch issue at enable or disable pretest procedure.</li> </ol>
R0226A0 (TSB BiCS3)	R0227A	R0206A0	<p>ISP:</p> <ol style="list-style-type: none"> <li>1. Fix GC priority issue.</li> <li>2. Change to hard decode first.</li> <li>3. Fix gc h2f src vpcnt=0 issue.</li> <li>4. Add TSB BICS3 RETRY TABLE.</li> <li>5. Add TSB BICS3 RETRY (0x26)CMD.</li> <li>6. Reduce ATA bank code size.</li> <li>7. Add support PWR by page.</li> <li>8. Switch to dynamic fix boundary.</li> <li>9. Adjust dynamic fix boundary strategy.</li> <li>10. Fix UGSD active full over program issue.</li> </ol> <p>MPTool:</p> <ol style="list-style-type: none"> <li>1. Add option to check bad block counts per plane.</li> <li>2. Fix bug: Erase system block hang fail issue.</li> <li>3. Add "Delay 30 minutes to read check" option at [RDT Test Setting] dialog.</li> <li>4. Just display flash part name that package can support.</li> <li>5. Create virtual FlashID.bin when click "Gen Linux Bin with All Parameter" or "Gen FFU File".</li> <li>6. Add "Erase All" option.</li> </ol>



Q1121A0	Q1121A	Q1116A0	<p>ISP:</p> <ol style="list-style-type: none"> <li>1. Fix PWR TLC Spare bug.</li> <li>2. Fix security erase issue.</li> <li>3. Enable partial flush cache f2h to fix customized script performance issue.</li> <li>4. Sync. B0KB features.</li> <li>5. Fine tune ATTO performance.</li> </ol> <p>RDT:</p> <ol style="list-style-type: none"> <li>1. Modify unbalanced card mode parameter. (Must match with 1116A SWPtest.dll)</li> </ol> <p>MPTool:</p> <ol style="list-style-type: none"> <li>1. More display which CH-CE occur Flash Time out at [RDT Result] page.</li> <li>2. Support "Reset SMART Tool". Just reset smart data and can't reset cpu.</li> </ol>
Q1107A0 ( For Sandisk BiCS3 only)	Q01106A	Q1031A0	<p>ISP:</p> <ol style="list-style-type: none"> <li>1. Support 128Gb/ 256Gb/ 512Gb per die</li> <li>2. Support 2CH and 4CH.</li> <li>3. Fixed 220V SPOR issue in SZ.</li> <li>4. Fixed SNDK BiCS3 Read Retry bug.</li> <li>5. Change to get check sum timing for different driving</li> <li>6. Add Delay for SanDisk BiCS2 SCR</li> <li>7. Sync read claim condition, wear leveling flow, force clean condition during background clean from other project.</li> <li>8. Modify MP reference from CID with Driving &amp; Clock.</li> <li>9. Fix VCT 110+IOMeter disconnect issue: avoid enter back ground GC before return Identify.</li> <li>10. Change default flash driving to overdrive.</li> <li>11. Fix Read Reclaim bug will read over last page.</li> <li>12. Update SNDK BiCS3 retry table</li> <li>13. Disable GC Suspend/Resume for SNDK BiCS3.</li> </ol> <p>MPISP:</p> <ol style="list-style-type: none"> <li>1. Modify erase all and add reset CMD.</li> <li>2. Fix tranRTC issue.</li> <li>3. Add check GPIO setting.</li> <li>4. Flash clock under 100Mhz do not need differential mode.</li> <li>5. Fix bug that TranAdj would hang up.</li> </ol> <p>RDT:</p> <ol style="list-style-type: none"> <li>1. Add force single plane program option.</li> <li>2. Support Read ID table.</li> <li>3. Fixed CH remapping bug.</li> </ol> <p>MPTool:</p> <ol style="list-style-type: none"> <li>1. Check Channel0-CE0 flash exist or not? If not, stop to initial card</li> <li>2. Restore InfoBIK if card initialization failed.</li> <li>3. Fix bug: Reference RDT bad twice, can't be recognized by host.</li> </ol>



			<ol style="list-style-type: none"> <li>4. Fixed CPU CLK display wrong at SSD information dialog.</li> <li>5. Default Toggle mode and flash CLK&gt; 100MHz need to always enable differential signal.</li> <li>6. Add "Bypass TranADK" function option.</li> <li>7. Display RDT bad blk counts by plane.</li> <li>8. Add "Max Test Block Cnt" option at RDT setting dialog.</li> <li>9. More parsing bad block counts by plane information.</li> <li>10. Add "Bypass read check for first 2 loop" option at [RDT Test Setting] dialog.</li> <li>11. Pre-Check capacity at "Reference RDT Bad" pretest option to initial card.</li> <li>12. More save FlashID.bin after download MPISP for Linux Tool used.</li> <li>13. Add "FFU Keep Device CID" checkbox to set CID[0x41].b0</li> <li>14. Modify CID default setting rule.</li> <li>15. Remove "New Bad Block" display at SSD Information dialog.</li> <li>16. Add "Ignore Erase Fail"</li> <li>17. Add "bypass status fail bit" option at [RDT Setting] dialog.</li> <li>18. Fix bug: Display gibberish at [ID Table] page when user use special string to fill SN/VendorSpecific. (Need to change font type)</li> </ol>
Q0602A0	Q0602A	Q0531A0	<p>ISP:</p> <ol style="list-style-type: none"> <li>1. Add the SLC NAND write count for WAF calculation</li> <li>2. Fix Vendor command issue</li> <li>3. Enlarge H2f block from 16 to 32.</li> <li>4. Add Read Count Function.</li> <li>5. Fix Erase CMD Polling bit. SLC should judge Bit2 and TLC Bit1.</li> <li>6. Partial GC timing rule change.</li> <li>7. Enlarge GC H2f CmdFiFo Depth for multi die operation.</li> <li>8. Fixed Wearleveling issue.</li> <li>9. Modify GC policy and fix GC issue.</li> <li>10. Modify GC time for 1TB.</li> <li>11. Fix readFlashID setClock bug.</li> <li>12. Fixed Read/Write Fail after secure erase issue that caused by newly added 32 H2f block function.</li> <li>13. Fix arrange TLC block over Thr issue.</li> <li>14. Add background GC improvement.</li> <li>15. Fix run out of spare block after separate static TLC/SLC block.</li> <li>16. Fixed retry loop and SLC force transfer UECC data issue.</li> <li>17. Add judge auto partial timer condition for Trim cmd issue</li> <li>18. Add extra TLC mark bad cnt.</li> <li>19. Add TLC UECC cnt for T2T GC Thr. adjustment.</li> <li>20. Add Prog. Suspend during GC.</li> </ol>



			<ul style="list-style-type: none"> <li>21. Enable TXSAS.</li> <li>22. Enable SeqLink2.</li> <li>23. Fix bgH2fForceClean can't not break when read SMART issue.</li> <li>24. Adjustment the GC Thr. when Mark too much bad.</li> <li>25. Modify Static Status Check.</li> <li>26. Fix 4Ch4Way u16Fpage overflow bug when page over 2048, by use tranAddrInfoDatBlk.</li> </ul> <p>RDT:</p> <ul style="list-style-type: none"> <li>1. Modify BiCS seed order</li> <li>2. Add die select function for multi die operation</li> <li>3. Integrate write flow code for each NAND.</li> </ul> <p>MPTool:</p> <ul style="list-style-type: none"> <li>1. Add IDEMA 90GB support.</li> <li>2. Don't keep RDT Result at "Ref RDT Bad" pretest option. ( [OPTION] : SkipKeepRDTResult )</li> <li>3. Fix bug: Erase system block need to use "MLC + one plane" mode for 3D Nand flash.</li> <li>4. Extend "Flash Part Name" information from 64 to 80 bytes of MPINFO.</li> <li>5. Add "Random SN" support.</li> </ul>
Q0418B	Q0417A	Q0420A0	<p>ISP</p> <p>1 First formal release to support Sandisk and Toshiba BiCS2 flash.</p>

**Note:**

- 1. F/W and ISP update is recommended.
- 2. History # is denoted by "Version-Date" .

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