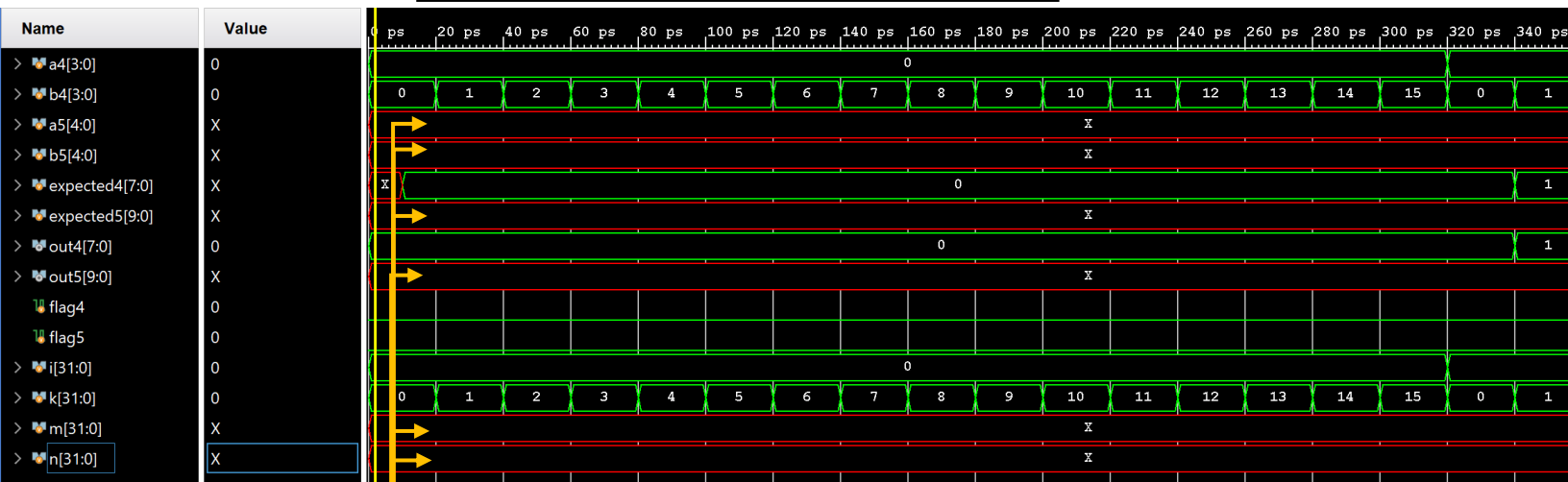
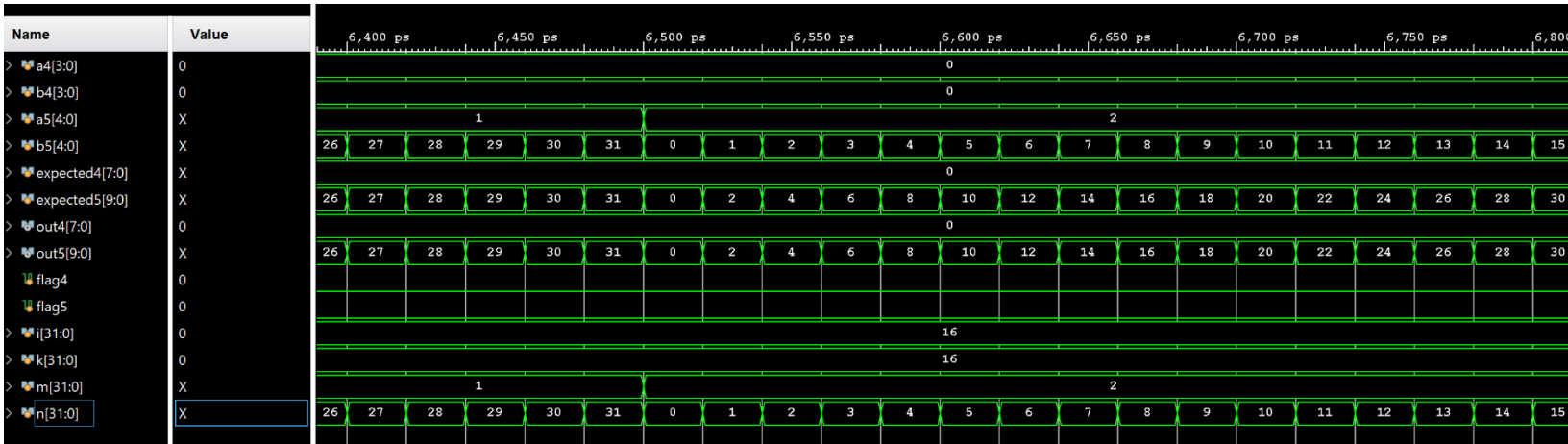


Waveforms

a stays constant as b changes due to use of a nested for loop to iterate through both a and b combos from 0 to 15, similar reasoning for k and l as there are the iterators



Red lines with Xs correspond to variables reserved for 5 bit case – has not been assigned yet, and only



All variables ending with 4 in the name are related to the 4bit case and stay constant as they remain in their last assigned state as the testbench =h moves on to iterate through the 5 bit cases

a5 stays constant as b5 changes due to use of a nested for loop to iterate through both a and b combos from 0 to 31, similar reasoning for m and n as there are the iterators

Text Output

Running: C:/Xilinx/Vivado/2020.1/bin/unwrapped/win64.o/xelab.exe -wto
2aef3cd5fab64514b340ca75f66bcd46 --incr --debug typical --relax --mt 2 -L xil_defaultlib
-L unisims_ver -L unimacro_ver -L secureip --snapshot n_bit_multiplier_tb_behav
xil_defaultlib.n_bit_multiplier_tb xil_defaultlib.glbl -log elaborate.log

Using 2 slave threads.

Starting static elaboration

Pass Through NonSizing Optimizer

Completed static elaboration

INFO: [XSIM 43-4323] No Change in HDL. Linking previously generated obj files to
create kernel

INFO: [USF-XSim-69] 'elaborate' step finished in '2' seconds

Vivado Simulator 2020.1

Time resolution is 1 ps

000 * 000 = 000	000 * 013 = 000	001 * 010 = 010	002 * 007 = 014
000 * 001 = 000	000 * 014 = 000	001 * 011 = 011	002 * 008 = 016
000 * 002 = 000	000 * 015 = 000	001 * 012 = 012	002 * 009 = 018
000 * 003 = 000	001 * 000 = 000	001 * 013 = 013	002 * 010 = 020
000 * 004 = 000	001 * 001 = 001	001 * 014 = 014	002 * 011 = 022
000 * 005 = 000	001 * 002 = 002	001 * 015 = 015	002 * 012 = 024
000 * 006 = 000	001 * 003 = 003	002 * 000 = 000	002 * 013 = 026
000 * 007 = 000	001 * 004 = 004	002 * 001 = 002	002 * 014 = 028
000 * 008 = 000	001 * 005 = 005	002 * 002 = 004	002 * 015 = 030
000 * 009 = 000	001 * 006 = 006	002 * 003 = 006	003 * 000 = 000
000 * 010 = 000	001 * 007 = 007	002 * 004 = 008	003 * 001 = 003
000 * 011 = 000	001 * 008 = 008	002 * 005 = 010	003 * 002 = 006
000 * 012 = 000	001 * 009 = 009	002 * 006 = 012	003 * 003 = 009

003 * 004 = 012	004 * 014 = 056	006 * 008 = 048	008 * 002 = 016
003 * 005 = 015	004 * 015 = 060	006 * 009 = 054	008 * 003 = 024
003 * 006 = 018	005 * 000 = 000	006 * 010 = 060	008 * 004 = 032
003 * 007 = 021	005 * 001 = 005	006 * 011 = 066	008 * 005 = 040
003 * 008 = 024	005 * 002 = 010	006 * 012 = 072	008 * 006 = 048
003 * 009 = 027	005 * 003 = 015	006 * 013 = 078	008 * 007 = 056
003 * 010 = 030	005 * 004 = 020	006 * 014 = 084	008 * 008 = 064
003 * 011 = 033	005 * 005 = 025	006 * 015 = 090	008 * 009 = 072
003 * 012 = 036	005 * 006 = 030	007 * 000 = 000	008 * 010 = 080
003 * 013 = 039	005 * 007 = 035	007 * 001 = 007	008 * 011 = 088
003 * 014 = 042	005 * 008 = 040	007 * 002 = 014	008 * 012 = 096
003 * 015 = 045	005 * 009 = 045	007 * 003 = 021	008 * 013 = 104
004 * 000 = 000	005 * 010 = 050	007 * 004 = 028	008 * 014 = 112
004 * 001 = 004	005 * 011 = 055	007 * 005 = 035	008 * 015 = 120
004 * 002 = 008	005 * 012 = 060	007 * 006 = 042	009 * 000 = 000
004 * 003 = 012	005 * 013 = 065	007 * 007 = 049	009 * 001 = 009
004 * 004 = 016	005 * 014 = 070	007 * 008 = 056	009 * 002 = 018
004 * 005 = 020	005 * 015 = 075	007 * 009 = 063	009 * 003 = 027
004 * 006 = 024	006 * 000 = 000	007 * 010 = 070	009 * 004 = 036
004 * 007 = 028	006 * 001 = 006	007 * 011 = 077	009 * 005 = 045
004 * 008 = 032	006 * 002 = 012	007 * 012 = 084	009 * 006 = 054
004 * 009 = 036	006 * 003 = 018	007 * 013 = 091	009 * 007 = 063
004 * 010 = 040	006 * 004 = 024	007 * 014 = 098	009 * 008 = 072
004 * 011 = 044	006 * 005 = 030	007 * 015 = 105	009 * 009 = 081
004 * 012 = 048	006 * 006 = 036	008 * 000 = 000	009 * 010 = 090
004 * 013 = 052	006 * 007 = 042	008 * 001 = 008	009 * 011 = 099

$009 * 012 = 108$	$011 * 006 = 066$	$013 * 000 = 000$	$014 * 010 = 140$
$009 * 013 = 117$	$011 * 007 = 077$	$013 * 001 = 013$	$014 * 011 = 154$
$009 * 014 = 126$	$011 * 008 = 088$	$013 * 002 = 026$	$014 * 012 = 168$
$009 * 015 = 135$	$011 * 009 = 099$	$013 * 003 = 039$	$014 * 013 = 182$
$010 * 000 = 000$	$011 * 010 = 110$	$013 * 004 = 052$	$014 * 014 = 196$
$010 * 001 = 010$	$011 * 011 = 121$	$013 * 005 = 065$	$014 * 015 = 210$
$010 * 002 = 020$	$011 * 012 = 132$	$013 * 006 = 078$	$015 * 000 = 000$
$010 * 003 = 030$	$011 * 013 = 143$	$013 * 007 = 091$	$015 * 001 = 015$
$010 * 004 = 040$	$011 * 014 = 154$	$013 * 008 = 104$	$015 * 002 = 030$
$010 * 005 = 050$	$011 * 015 = 165$	$013 * 009 = 117$	$015 * 003 = 045$
$010 * 006 = 060$	$012 * 000 = 000$	$013 * 010 = 130$	$015 * 004 = 060$
$010 * 007 = 070$	$012 * 001 = 012$	$013 * 011 = 143$	$015 * 005 = 075$
$010 * 008 = 080$	$012 * 002 = 024$	$013 * 012 = 156$	$015 * 006 = 090$
$010 * 009 = 090$	$012 * 003 = 036$	$013 * 013 = 169$	$015 * 007 = 105$
$010 * 010 = 100$	$012 * 004 = 048$	$013 * 014 = 182$	$015 * 008 = 120$
$010 * 011 = 110$	$012 * 005 = 060$	$013 * 015 = 195$	$015 * 009 = 135$
$010 * 012 = 120$	$012 * 006 = 072$	$014 * 000 = 000$	$015 * 010 = 150$
$010 * 013 = 130$	$012 * 007 = 084$	$014 * 001 = 014$	$015 * 011 = 165$
$010 * 014 = 140$	$012 * 008 = 096$	$014 * 002 = 028$	$015 * 012 = 180$
$010 * 015 = 150$	$012 * 009 = 108$	$014 * 003 = 042$	$015 * 013 = 195$
$011 * 000 = 000$	$012 * 010 = 120$	$014 * 004 = 056$	$015 * 014 = 210$
$011 * 001 = 011$	$012 * 011 = 132$	$014 * 005 = 070$	$015 * 015 = 225$
$011 * 002 = 022$	$012 * 012 = 144$	$014 * 006 = 084$	$000 * 000 = 000$
$011 * 003 = 033$	$012 * 013 = 156$	$014 * 007 = 098$	$000 * 001 = 000$
$011 * 004 = 044$	$012 * 014 = 168$	$014 * 008 = 112$	$000 * 002 = 000$
$011 * 005 = 055$	$012 * 015 = 180$	$014 * 009 = 126$	$000 * 003 = 000$

$000 * 004 = 000$	$000 * 030 = 000$	$001 * 024 = 024$	$002 * 018 = 036$
$000 * 005 = 000$	$000 * 031 = 000$	$001 * 025 = 025$	$002 * 019 = 038$
$000 * 006 = 000$	$001 * 000 = 000$	$001 * 026 = 026$	$002 * 020 = 040$
$000 * 007 = 000$	$001 * 001 = 001$	$001 * 027 = 027$	$002 * 021 = 042$
$000 * 008 = 000$	$001 * 002 = 002$	$001 * 028 = 028$	$002 * 022 = 044$
$000 * 009 = 000$	$001 * 003 = 003$	$001 * 029 = 029$	$002 * 023 = 046$
$000 * 010 = 000$	$001 * 004 = 004$	$001 * 030 = 030$	$002 * 024 = 048$
$000 * 011 = 000$	$001 * 005 = 005$	$001 * 031 = 031$	$002 * 025 = 050$
$000 * 012 = 000$	$001 * 006 = 006$	$002 * 000 = 000$	$002 * 026 = 052$
$000 * 013 = 000$	$001 * 007 = 007$	$002 * 001 = 002$	$002 * 027 = 054$
$000 * 014 = 000$	$001 * 008 = 008$	$002 * 002 = 004$	$002 * 028 = 056$
$000 * 015 = 000$	$001 * 009 = 009$	$002 * 003 = 006$	$002 * 029 = 058$
$000 * 016 = 000$	$001 * 010 = 010$	$002 * 004 = 008$	$002 * 030 = 060$
$000 * 017 = 000$	$001 * 011 = 011$	$002 * 005 = 010$	$002 * 031 = 062$
$000 * 018 = 000$	$001 * 012 = 012$	$002 * 006 = 012$	$003 * 000 = 000$
$000 * 019 = 000$	$001 * 013 = 013$	$002 * 007 = 014$	$003 * 001 = 003$
$000 * 020 = 000$	$001 * 014 = 014$	$002 * 008 = 016$	$003 * 002 = 006$
$000 * 021 = 000$	$001 * 015 = 015$	$002 * 009 = 018$	$003 * 003 = 009$
$000 * 022 = 000$	$001 * 016 = 016$	$002 * 010 = 020$	$003 * 004 = 012$
$000 * 023 = 000$	$001 * 017 = 017$	$002 * 011 = 022$	$003 * 005 = 015$
$000 * 024 = 000$	$001 * 018 = 018$	$002 * 012 = 024$	$003 * 006 = 018$
$000 * 025 = 000$	$001 * 019 = 019$	$002 * 013 = 026$	$003 * 007 = 021$
$000 * 026 = 000$	$001 * 020 = 020$	$002 * 014 = 028$	$003 * 008 = 024$
$000 * 027 = 000$	$001 * 021 = 021$	$002 * 015 = 030$	$003 * 009 = 027$
$000 * 028 = 000$	$001 * 022 = 022$	$002 * 016 = 032$	$003 * 010 = 030$
$000 * 029 = 000$	$001 * 023 = 023$	$002 * 017 = 034$	$003 * 011 = 033$

003 * 012 = 036	004 * 006 = 024	005 * 000 = 000	005 * 026 = 130
003 * 013 = 039	004 * 007 = 028	005 * 001 = 005	005 * 027 = 135
003 * 014 = 042	004 * 008 = 032	005 * 002 = 010	005 * 028 = 140
003 * 015 = 045	004 * 009 = 036	005 * 003 = 015	005 * 029 = 145
003 * 016 = 048	004 * 010 = 040	005 * 004 = 020	005 * 030 = 150
003 * 017 = 051	004 * 011 = 044	005 * 005 = 025	005 * 031 = 155
003 * 018 = 054	004 * 012 = 048	005 * 006 = 030	006 * 000 = 000
003 * 019 = 057	004 * 013 = 052	005 * 007 = 035	006 * 001 = 006
003 * 020 = 060	004 * 014 = 056	005 * 008 = 040	006 * 002 = 012
003 * 021 = 063	004 * 015 = 060	005 * 009 = 045	006 * 003 = 018
003 * 022 = 066	004 * 016 = 064	005 * 010 = 050	006 * 004 = 024
003 * 023 = 069	004 * 017 = 068	005 * 011 = 055	006 * 005 = 030
003 * 024 = 072	004 * 018 = 072	005 * 012 = 060	006 * 006 = 036
003 * 025 = 075	004 * 019 = 076	005 * 013 = 065	006 * 007 = 042
003 * 026 = 078	004 * 020 = 080	005 * 014 = 070	006 * 008 = 048
003 * 027 = 081	004 * 021 = 084	005 * 015 = 075	006 * 009 = 054
003 * 028 = 084	004 * 022 = 088	005 * 016 = 080	006 * 010 = 060
003 * 029 = 087	004 * 023 = 092	005 * 017 = 085	006 * 011 = 066
003 * 030 = 090	004 * 024 = 096	005 * 018 = 090	006 * 012 = 072
003 * 031 = 093	004 * 025 = 100	005 * 019 = 095	006 * 013 = 078
004 * 000 = 000	004 * 026 = 104	005 * 020 = 100	006 * 014 = 084
004 * 001 = 004	004 * 027 = 108	005 * 021 = 105	006 * 015 = 090
004 * 002 = 008	004 * 028 = 112	005 * 022 = 110	006 * 016 = 096
004 * 003 = 012	004 * 029 = 116	005 * 023 = 115	006 * 017 = 102
004 * 004 = 016	004 * 030 = 120	005 * 024 = 120	006 * 018 = 108
004 * 005 = 020	004 * 031 = 124	005 * 025 = 125	006 * 019 = 114

006 * 020 = 120	007 * 014 = 098	008 * 008 = 064	009 * 002 = 018
006 * 021 = 126	007 * 015 = 105	008 * 009 = 072	009 * 003 = 027
006 * 022 = 132	007 * 016 = 112	008 * 010 = 080	009 * 004 = 036
006 * 023 = 138	007 * 017 = 119	008 * 011 = 088	009 * 005 = 045
006 * 024 = 144	007 * 018 = 126	008 * 012 = 096	009 * 006 = 054
006 * 025 = 150	007 * 019 = 133	008 * 013 = 104	009 * 007 = 063
006 * 026 = 156	007 * 020 = 140	008 * 014 = 112	009 * 008 = 072
006 * 027 = 162	007 * 021 = 147	008 * 015 = 120	009 * 009 = 081
006 * 028 = 168	007 * 022 = 154	008 * 016 = 128	009 * 010 = 090
006 * 029 = 174	007 * 023 = 161	008 * 017 = 136	009 * 011 = 099
006 * 030 = 180	007 * 024 = 168	008 * 018 = 144	009 * 012 = 108
006 * 031 = 186	007 * 025 = 175	008 * 019 = 152	009 * 013 = 117
007 * 000 = 000	007 * 026 = 182	008 * 020 = 160	009 * 014 = 126
007 * 001 = 007	007 * 027 = 189	008 * 021 = 168	009 * 015 = 135
007 * 002 = 014	007 * 028 = 196	008 * 022 = 176	009 * 016 = 144
007 * 003 = 021	007 * 029 = 203	008 * 023 = 184	009 * 017 = 153
007 * 004 = 028	007 * 030 = 210	008 * 024 = 192	009 * 018 = 162
007 * 005 = 035	007 * 031 = 217	008 * 025 = 200	009 * 019 = 171
007 * 006 = 042	008 * 000 = 000	008 * 026 = 208	009 * 020 = 180
007 * 007 = 049	008 * 001 = 008	008 * 027 = 216	009 * 021 = 189
007 * 008 = 056	008 * 002 = 016	008 * 028 = 224	009 * 022 = 198
007 * 009 = 063	008 * 003 = 024	008 * 029 = 232	009 * 023 = 207
007 * 010 = 070	008 * 004 = 032	008 * 030 = 240	009 * 024 = 216
007 * 011 = 077	008 * 005 = 040	008 * 031 = 248	009 * 025 = 225
007 * 012 = 084	008 * 006 = 048	009 * 000 = 000	009 * 026 = 234
007 * 013 = 091	008 * 007 = 056	009 * 001 = 009	009 * 027 = 243

009 * 028 = 252	010 * 022 = 220	011 * 016 = 176	012 * 010 = 120
009 * 029 = 261	010 * 023 = 230	011 * 017 = 187	012 * 011 = 132
009 * 030 = 270	010 * 024 = 240	011 * 018 = 198	012 * 012 = 144
009 * 031 = 279	010 * 025 = 250	011 * 019 = 209	012 * 013 = 156
010 * 000 = 000	010 * 026 = 260	011 * 020 = 220	012 * 014 = 168
010 * 001 = 010	010 * 027 = 270	011 * 021 = 231	012 * 015 = 180
010 * 002 = 020	010 * 028 = 280	011 * 022 = 242	012 * 016 = 192
010 * 003 = 030	010 * 029 = 290	011 * 023 = 253	012 * 017 = 204
010 * 004 = 040	010 * 030 = 300	011 * 024 = 264	012 * 018 = 216
010 * 005 = 050	010 * 031 = 310	011 * 025 = 275	012 * 019 = 228
010 * 006 = 060	011 * 000 = 000	011 * 026 = 286	012 * 020 = 240
010 * 007 = 070	011 * 001 = 011	011 * 027 = 297	012 * 021 = 252
010 * 008 = 080	011 * 002 = 022	011 * 028 = 308	012 * 022 = 264
010 * 009 = 090	011 * 003 = 033	011 * 029 = 319	012 * 023 = 276
010 * 010 = 100	011 * 004 = 044	011 * 030 = 330	012 * 024 = 288
010 * 011 = 110	011 * 005 = 055	011 * 031 = 341	012 * 025 = 300
010 * 012 = 120	011 * 006 = 066	012 * 000 = 000	012 * 026 = 312
010 * 013 = 130	011 * 007 = 077	012 * 001 = 012	012 * 027 = 324
010 * 014 = 140	011 * 008 = 088	012 * 002 = 024	012 * 028 = 336
010 * 015 = 150	011 * 009 = 099	012 * 003 = 036	012 * 029 = 348
010 * 016 = 160	011 * 010 = 110	012 * 004 = 048	012 * 030 = 360
010 * 017 = 170	011 * 011 = 121	012 * 005 = 060	012 * 031 = 372
010 * 018 = 180	011 * 012 = 132	012 * 006 = 072	013 * 000 = 000
010 * 019 = 190	011 * 013 = 143	012 * 007 = 084	013 * 001 = 013
010 * 020 = 200	011 * 014 = 154	012 * 008 = 096	013 * 002 = 026
010 * 021 = 210	011 * 015 = 165	012 * 009 = 108	013 * 003 = 039

$013 * 004 = 052$	$013 * 030 = 390$	$014 * 024 = 336$	$015 * 018 = 270$
$013 * 005 = 065$	$013 * 031 = 403$	$014 * 025 = 350$	$015 * 019 = 285$
$013 * 006 = 078$	$014 * 000 = 000$	$014 * 026 = 364$	$015 * 020 = 300$
$013 * 007 = 091$	$014 * 001 = 014$	$014 * 027 = 378$	$015 * 021 = 315$
$013 * 008 = 104$	$014 * 002 = 028$	$014 * 028 = 392$	$015 * 022 = 330$
$013 * 009 = 117$	$014 * 003 = 042$	$014 * 029 = 406$	$015 * 023 = 345$
$013 * 010 = 130$	$014 * 004 = 056$	$014 * 030 = 420$	$015 * 024 = 360$
$013 * 011 = 143$	$014 * 005 = 070$	$014 * 031 = 434$	$015 * 025 = 375$
$013 * 012 = 156$	$014 * 006 = 084$	$015 * 000 = 000$	$015 * 026 = 390$
$013 * 013 = 169$	$014 * 007 = 098$	$015 * 001 = 015$	$015 * 027 = 405$
$013 * 014 = 182$	$014 * 008 = 112$	$015 * 002 = 030$	$015 * 028 = 420$
$013 * 015 = 195$	$014 * 009 = 126$	$015 * 003 = 045$	$015 * 029 = 435$
$013 * 016 = 208$	$014 * 010 = 140$	$015 * 004 = 060$	$015 * 030 = 450$
$013 * 017 = 221$	$014 * 011 = 154$	$015 * 005 = 075$	$015 * 031 = 465$
$013 * 018 = 234$	$014 * 012 = 168$	$015 * 006 = 090$	$016 * 000 = 000$
$013 * 019 = 247$	$014 * 013 = 182$	$015 * 007 = 105$	$016 * 001 = 016$
$013 * 020 = 260$	$014 * 014 = 196$	$015 * 008 = 120$	$016 * 002 = 032$
$013 * 021 = 273$	$014 * 015 = 210$	$015 * 009 = 135$	$016 * 003 = 048$
$013 * 022 = 286$	$014 * 016 = 224$	$015 * 010 = 150$	$016 * 004 = 064$
$013 * 023 = 299$	$014 * 017 = 238$	$015 * 011 = 165$	$016 * 005 = 080$
$013 * 024 = 312$	$014 * 018 = 252$	$015 * 012 = 180$	$016 * 006 = 096$
$013 * 025 = 325$	$014 * 019 = 266$	$015 * 013 = 195$	$016 * 007 = 112$
$013 * 026 = 338$	$014 * 020 = 280$	$015 * 014 = 210$	$016 * 008 = 128$
$013 * 027 = 351$	$014 * 021 = 294$	$015 * 015 = 225$	$016 * 009 = 144$
$013 * 028 = 364$	$014 * 022 = 308$	$015 * 016 = 240$	$016 * 010 = 160$
$013 * 029 = 377$	$014 * 023 = 322$	$015 * 017 = 255$	$016 * 011 = 176$

016 * 012 = 192	017 * 006 = 102	018 * 000 = 000	018 * 026 = 468
016 * 013 = 208	017 * 007 = 119	018 * 001 = 018	018 * 027 = 486
016 * 014 = 224	017 * 008 = 136	018 * 002 = 036	018 * 028 = 504
016 * 015 = 240	017 * 009 = 153	018 * 003 = 054	018 * 029 = 522
016 * 016 = 256	017 * 010 = 170	018 * 004 = 072	018 * 030 = 540
016 * 017 = 272	017 * 011 = 187	018 * 005 = 090	018 * 031 = 558
016 * 018 = 288	017 * 012 = 204	018 * 006 = 108	019 * 000 = 000
016 * 019 = 304	017 * 013 = 221	018 * 007 = 126	019 * 001 = 019
016 * 020 = 320	017 * 014 = 238	018 * 008 = 144	019 * 002 = 038
016 * 021 = 336	017 * 015 = 255	018 * 009 = 162	019 * 003 = 057
016 * 022 = 352	017 * 016 = 272	018 * 010 = 180	019 * 004 = 076
016 * 023 = 368	017 * 017 = 289	018 * 011 = 198	019 * 005 = 095
016 * 024 = 384	017 * 018 = 306	018 * 012 = 216	019 * 006 = 114
016 * 025 = 400	017 * 019 = 323	018 * 013 = 234	019 * 007 = 133
016 * 026 = 416	017 * 020 = 340	018 * 014 = 252	019 * 008 = 152
016 * 027 = 432	017 * 021 = 357	018 * 015 = 270	019 * 009 = 171
016 * 028 = 448	017 * 022 = 374	018 * 016 = 288	019 * 010 = 190
016 * 029 = 464	017 * 023 = 391	018 * 017 = 306	019 * 011 = 209
016 * 030 = 480	017 * 024 = 408	018 * 018 = 324	019 * 012 = 228
016 * 031 = 496	017 * 025 = 425	018 * 019 = 342	019 * 013 = 247
017 * 000 = 000	017 * 026 = 442	018 * 020 = 360	019 * 014 = 266
017 * 001 = 017	017 * 027 = 459	018 * 021 = 378	019 * 015 = 285
017 * 002 = 034	017 * 028 = 476	018 * 022 = 396	019 * 016 = 304
017 * 003 = 051	017 * 029 = 493	018 * 023 = 414	019 * 017 = 323
017 * 004 = 068	017 * 030 = 510	018 * 024 = 432	019 * 018 = 342
017 * 005 = 085	017 * 031 = 527	018 * 025 = 450	019 * 019 = 361

019 * 020 = 380	020 * 014 = 280	021 * 008 = 168	022 * 002 = 044
019 * 021 = 399	020 * 015 = 300	021 * 009 = 189	022 * 003 = 066
019 * 022 = 418	020 * 016 = 320	021 * 010 = 210	022 * 004 = 088
019 * 023 = 437	020 * 017 = 340	021 * 011 = 231	022 * 005 = 110
019 * 024 = 456	020 * 018 = 360	021 * 012 = 252	022 * 006 = 132
019 * 025 = 475	020 * 019 = 380	021 * 013 = 273	022 * 007 = 154
019 * 026 = 494	020 * 020 = 400	021 * 014 = 294	022 * 008 = 176
019 * 027 = 513	020 * 021 = 420	021 * 015 = 315	022 * 009 = 198
019 * 028 = 532	020 * 022 = 440	021 * 016 = 336	022 * 010 = 220
019 * 029 = 551	020 * 023 = 460	021 * 017 = 357	022 * 011 = 242
019 * 030 = 570	020 * 024 = 480	021 * 018 = 378	022 * 012 = 264
019 * 031 = 589	020 * 025 = 500	021 * 019 = 399	022 * 013 = 286
020 * 000 = 000	020 * 026 = 520	021 * 020 = 420	022 * 014 = 308
020 * 001 = 020	020 * 027 = 540	021 * 021 = 441	022 * 015 = 330
020 * 002 = 040	020 * 028 = 560	021 * 022 = 462	022 * 016 = 352
020 * 003 = 060	020 * 029 = 580	021 * 023 = 483	022 * 017 = 374
020 * 004 = 080	020 * 030 = 600	021 * 024 = 504	022 * 018 = 396
020 * 005 = 100	020 * 031 = 620	021 * 025 = 525	022 * 019 = 418
020 * 006 = 120	021 * 000 = 000	021 * 026 = 546	022 * 020 = 440
020 * 007 = 140	021 * 001 = 021	021 * 027 = 567	022 * 021 = 462
020 * 008 = 160	021 * 002 = 042	021 * 028 = 588	022 * 022 = 484
020 * 009 = 180	021 * 003 = 063	021 * 029 = 609	022 * 023 = 506
020 * 010 = 200	021 * 004 = 084	021 * 030 = 630	022 * 024 = 528
020 * 011 = 220	021 * 005 = 105	021 * 031 = 651	022 * 025 = 550
020 * 012 = 240	021 * 006 = 126	022 * 000 = 000	022 * 026 = 572
020 * 013 = 260	021 * 007 = 147	022 * 001 = 022	022 * 027 = 594

$022 * 028 = 616$	$023 * 022 = 506$	$024 * 016 = 384$	$025 * 010 = 250$
$022 * 029 = 638$	$023 * 023 = 529$	$024 * 017 = 408$	$025 * 011 = 275$
$022 * 030 = 660$	$023 * 024 = 552$	$024 * 018 = 432$	$025 * 012 = 300$
$022 * 031 = 682$	$023 * 025 = 575$	$024 * 019 = 456$	$025 * 013 = 325$
$023 * 000 = 000$	$023 * 026 = 598$	$024 * 020 = 480$	$025 * 014 = 350$
$023 * 001 = 023$	$023 * 027 = 621$	$024 * 021 = 504$	$025 * 015 = 375$
$023 * 002 = 046$	$023 * 028 = 644$	$024 * 022 = 528$	$025 * 016 = 400$
$023 * 003 = 069$	$023 * 029 = 667$	$024 * 023 = 552$	$025 * 017 = 425$
$023 * 004 = 092$	$023 * 030 = 690$	$024 * 024 = 576$	$025 * 018 = 450$
$023 * 005 = 115$	$023 * 031 = 713$	$024 * 025 = 600$	$025 * 019 = 475$
$023 * 006 = 138$	$024 * 000 = 000$	$024 * 026 = 624$	$025 * 020 = 500$
$023 * 007 = 161$	$024 * 001 = 024$	$024 * 027 = 648$	$025 * 021 = 525$
$023 * 008 = 184$	$024 * 002 = 048$	$024 * 028 = 672$	$025 * 022 = 550$
$023 * 009 = 207$	$024 * 003 = 072$	$024 * 029 = 696$	$025 * 023 = 575$
$023 * 010 = 230$	$024 * 004 = 096$	$024 * 030 = 720$	$025 * 024 = 600$
$023 * 011 = 253$	$024 * 005 = 120$	$024 * 031 = 744$	$025 * 025 = 625$
$023 * 012 = 276$	$024 * 006 = 144$	$025 * 000 = 000$	$025 * 026 = 650$
$023 * 013 = 299$	$024 * 007 = 168$	$025 * 001 = 025$	$025 * 027 = 675$
$023 * 014 = 322$	$024 * 008 = 192$	$025 * 002 = 050$	$025 * 028 = 700$
$023 * 015 = 345$	$024 * 009 = 216$	$025 * 003 = 075$	$025 * 029 = 725$
$023 * 016 = 368$	$024 * 010 = 240$	$025 * 004 = 100$	$025 * 030 = 750$
$023 * 017 = 391$	$024 * 011 = 264$	$025 * 005 = 125$	$025 * 031 = 775$
$023 * 018 = 414$	$024 * 012 = 288$	$025 * 006 = 150$	$026 * 000 = 000$
$023 * 019 = 437$	$024 * 013 = 312$	$025 * 007 = 175$	$026 * 001 = 026$
$023 * 020 = 460$	$024 * 014 = 336$	$025 * 008 = 200$	$026 * 002 = 052$
$023 * 021 = 483$	$024 * 015 = 360$	$025 * 009 = 225$	$026 * 003 = 078$

$026 * 004 = 104$	$026 * 030 = 780$	$027 * 024 = 648$	$028 * 018 = 504$
$026 * 005 = 130$	$026 * 031 = 806$	$027 * 025 = 675$	$028 * 019 = 532$
$026 * 006 = 156$	$027 * 000 = 000$	$027 * 026 = 702$	$028 * 020 = 560$
$026 * 007 = 182$	$027 * 001 = 027$	$027 * 027 = 729$	$028 * 021 = 588$
$026 * 008 = 208$	$027 * 002 = 054$	$027 * 028 = 756$	$028 * 022 = 616$
$026 * 009 = 234$	$027 * 003 = 081$	$027 * 029 = 783$	$028 * 023 = 644$
$026 * 010 = 260$	$027 * 004 = 108$	$027 * 030 = 810$	$028 * 024 = 672$
$026 * 011 = 286$	$027 * 005 = 135$	$027 * 031 = 837$	$028 * 025 = 700$
$026 * 012 = 312$	$027 * 006 = 162$	$028 * 000 = 000$	$028 * 026 = 728$
$026 * 013 = 338$	$027 * 007 = 189$	$028 * 001 = 028$	$028 * 027 = 756$
$026 * 014 = 364$	$027 * 008 = 216$	$028 * 002 = 056$	$028 * 028 = 784$
$026 * 015 = 390$	$027 * 009 = 243$	$028 * 003 = 084$	$028 * 029 = 812$
$026 * 016 = 416$	$027 * 010 = 270$	$028 * 004 = 112$	$028 * 030 = 840$
$026 * 017 = 442$	$027 * 011 = 297$	$028 * 005 = 140$	$028 * 031 = 868$
$026 * 018 = 468$	$027 * 012 = 324$	$028 * 006 = 168$	$029 * 000 = 000$
$026 * 019 = 494$	$027 * 013 = 351$	$028 * 007 = 196$	$029 * 001 = 029$
$026 * 020 = 520$	$027 * 014 = 378$	$028 * 008 = 224$	$029 * 002 = 058$
$026 * 021 = 546$	$027 * 015 = 405$	$028 * 009 = 252$	$029 * 003 = 087$
$026 * 022 = 572$	$027 * 016 = 432$	$028 * 010 = 280$	$029 * 004 = 116$
$026 * 023 = 598$	$027 * 017 = 459$	$028 * 011 = 308$	$029 * 005 = 145$
$026 * 024 = 624$	$027 * 018 = 486$	$028 * 012 = 336$	$029 * 006 = 174$
$026 * 025 = 650$	$027 * 019 = 513$	$028 * 013 = 364$	$029 * 007 = 203$
$026 * 026 = 676$	$027 * 020 = 540$	$028 * 014 = 392$	$029 * 008 = 232$
$026 * 027 = 702$	$027 * 021 = 567$	$028 * 015 = 420$	$029 * 009 = 261$
$026 * 028 = 728$	$027 * 022 = 594$	$028 * 016 = 448$	$029 * 010 = 290$
$026 * 029 = 754$	$027 * 023 = 621$	$028 * 017 = 476$	$029 * 011 = 319$

029 * 012 = 348	030 * 006 = 180	031 * 000 = 000	031 * 026 = 806
029 * 013 = 377	030 * 007 = 210	031 * 001 = 031	031 * 027 = 837
029 * 014 = 406	030 * 008 = 240	031 * 002 = 062	031 * 028 = 868
029 * 015 = 435	030 * 009 = 270	031 * 003 = 093	031 * 029 = 899
029 * 016 = 464	030 * 010 = 300	031 * 004 = 124	031 * 030 = 930
029 * 017 = 493	030 * 011 = 330	031 * 005 = 155	031 * 031 = 961
029 * 018 = 522	030 * 012 = 360	031 * 006 = 186	Passed 4 and 5
029 * 019 = 551	030 * 013 = 390	031 * 007 = 217	bit Multiplier
029 * 020 = 580	030 * 014 = 420	031 * 008 = 248	Tests! :)))
029 * 021 = 609	030 * 015 = 450	031 * 009 = 279	relaunch_sim:
029 * 022 = 638	030 * 016 = 480	031 * 010 = 310	Time (s): cpu =
029 * 023 = 667	030 * 017 = 510	031 * 011 = 341	00:00:02 ;
029 * 024 = 696	030 * 018 = 540	031 * 012 = 372	elapsed =
029 * 025 = 725	030 * 019 = 570	031 * 013 = 403	00:00:07 .
029 * 026 = 754	030 * 020 = 600	031 * 014 = 434	Memory (MB):
029 * 027 = 783	030 * 021 = 630	031 * 015 = 465	peak = 1111.727
029 * 028 = 812	030 * 022 = 660	031 * 016 = 496	; gain = 0.000
029 * 029 = 841	030 * 023 = 690	031 * 017 = 527	
029 * 030 = 870	030 * 024 = 720	031 * 018 = 558	
029 * 031 = 899	030 * 025 = 750	031 * 019 = 589	
030 * 000 = 000	030 * 026 = 780	031 * 020 = 620	
030 * 001 = 030	030 * 027 = 810	031 * 021 = 651	
030 * 002 = 060	030 * 028 = 840	031 * 022 = 682	
030 * 003 = 090	030 * 029 = 870	031 * 023 = 713	
030 * 004 = 120	030 * 030 = 900	031 * 024 = 744	
030 * 005 = 150	030 * 031 = 930	031 * 025 = 775	