Genomic and genetic variability of six chicken populations using single nucleotide polymorphism and copy number variants as markers

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**Supplementary Table S3** *Copy Number Variant Regions (CNVR) mapped (chromosome (Chr) region start, end and length and CNVR state) for each of the six Italian chicken breed (LI=Livornese, MB=Mericanel della Brianza, MI=Milanino, PI=Bionda Piemontese, SA=Bianca di Saluzzo and SI=Siciliana). Individuals are reported in Breed\_SampleID column.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Chr | CNVR  Start (bp) | CNVR  End (bp) | CNVR Length (bp) | Breed\_SampleID | CNVR  state |
| 1 | 9126940 | 9143601 | 16661 | LI\_7 | GAIN |
| 1 | 23812864 | 23817003 | 4139 | LI\_10 | LOSS |
| 1 | 25835971 | 25839970 | 3999 | LI\_6 | LOSS |
| 1 | 28444831 | 28448719 | 3888 | LI\_13 | LOSS |
| 1 | 28460553 | 28469033 | 8480 | LI\_13 | LOSS |
| 1 | 29649120 | 29656052 | 6932 | LI\_16 | LOSS |
| 1 | 32261418 | 32264785 | 3367 | LI\_4 | GAIN |
| 1 | 43445087 | 43450974 | 5887 | LI\_10 | LOSS |
| 1 | 73474060 | 73480039 | 5979 | LI\_9 | GAIN |
| 1 | 77610657 | 77617319 | 6662 | LI\_4 | GAIN |
| 1 | 88082730 | 88092227 | 9497 | LI\_4 | GAIN |
| 1 | 102931495 | 102966351 | 34856 | LI\_9 | GAIN |
| 1 | 105454801 | 105459538 | 4737 | LI\_7 | LOSS |
| 1 | 124424407 | 124425025 | 618 | LI\_16 | GAIN |
| 1 | 137262485 | 137266365 | 3880 | LI\_2 | GAIN |
| 1 | 139290303 | 139417687 | 127384 | LI\_7 | GAIN |
| 1 | 141493034 | 141501579 | 8545 | LI\_9 | GAIN |
| 1 | 151077811 | 151103187 | 25376 | LI\_11,LI\_5 | GAIN |
| 1 | 151120104 | 151126098 | 5994 | LI\_14,LI\_15 | LOSS |
| 1 | 160947041 | 160965926 | 18885 | LI\_2 | LOSS |
| 1 | 161230334 | 161231780 | 1446 | LI\_7 | LOSS |
| 1 | 165174530 | 165183916 | 9386 | LI\_3\_R | GAIN |
| 1 | 184911407 | 184915744 | 4337 | LI\_11,LI\_13 | LOSS |
| 1 | 188915548 | 188920734 | 5186 | LI\_11 | LOSS |
| 2 | 2584064 | 2595497 | 11433 | LI\_4 | GAIN |
| 2 | 22957325 | 22958518 | 1193 | LI\_7 | GAIN |
| 2 | 25859462 | 25952423 | 92961 | LI\_3\_R,LI\_8\_R,LI\_2,LI\_1 | LOSS |
| 2 | 57663103 | 57669441 | 6338 | LI\_15 | GAIN |
| 2 | 60096217 | 60109363 | 13146 | LI\_4 | GAIN |
| 2 | 61558638 | 61574562 | 15924 | LI\_9 | GAIN |
| 2 | 61831467 | 61848698 | 17231 | LI\_9 | GAIN |
| 2 | 63628602 | 63630632 | 2030 | LI\_10 | LOSS |
| 2 | 75782432 | 75789532 | 7100 | LI\_9 | GAIN |
| 2 | 77522436 | 77527196 | 4760 | LI\_12,LI\_13 | LOSS |
| 2 | 87680240 | 87694251 | 14011 | LI\_10,LI\_12,LI\_13,LI\_15,LI\_16 | LOSS |
| 2 | 93132478 | 93157538 | 25060 | LI\_10,LI\_12,LI\_15 | LOSS |
| 2 | 93671386 | 93699066 | 27680 | LI\_3\_R | GAIN |
| 2 | 121130610 | 121142245 | 11635 | LI\_3\_R | GAIN |
| 2 | 141127635 | 141134337 | 6702 | LI\_16,LI\_6,LI\_7 | LOSS |
| 3 | 11654769 | 11661304 | 6535 | LI\_14,LI\_5 | GAIN |
| 3 | 37240711 | 37258225 | 17514 | LI\_5 | GAIN |
| 3 | 58097854 | 58102975 | 5121 | LI\_9 | LOSS |
| 3 | 75203576 | 75206622 | 3046 | LI\_11 | LOSS |
| 3 | 97775486 | 97778052 | 2566 | LI\_2,LI\_4,LI\_5,LI\_6,LI\_7 | LOSS |
| 4 | 5111388 | 5114996 | 3608 | LI\_7 | LOSS |
| 4 | 13316392 | 13319428 | 3036 | LI\_15 | GAIN |
| 4 | 42076031 | 42080664 | 4633 | LI\_10,LI\_13 | LOSS |
| 4 | 47202618 | 47205335 | 2717 | LI\_1,LI\_16,LI\_9 | LOSS |
| 4 | 63010731 | 63024133 | 13402 | LI\_4 | GAIN |
| 4 | 76259738 | 76278990 | 19252 | LI\_11 | GAIN |
| 5 | 18270982 | 18273279 | 2297 | LI\_5 | GAIN |
| 5 | 19630190 | 19707342 | 77152 | LI\_11,LI\_16,LI\_10,LI\_13 | LOSS |
| 5 | 21668927 | 21676808 | 7881 | LI\_3\_R,LI\_7 | LOSS |
| 5 | 22407746 | 22410680 | 2934 | LI\_2 | LOSS |
| 5 | 29070715 | 29073718 | 3003 | LI\_9 | GAIN |
| 5 | 40024565 | 40039414 | 14849 | LI\_9 | GAIN |
| 5 | 48851655 | 48858827 | 7172 | LI\_11 | LOSS |
| 5 | 49067692 | 49072565 | 4873 | LI\_2,LI\_7 | LOSS |
| 6 | 7298525 | 7303004 | 4479 | LI\_12,LI\_13,LI\_14,LI\_15,  LI\_3\_R | LOSS |
| 6 | 12304431 | 12307723 | 3292 | LI\_9 | GAIN |
| 6 | 34190817 | 34195158 | 4341 | LI\_13 | LOSS |
| 7 | 8119314 | 8120216 | 902 | LI\_10,LI\_13 | LOSS |
| 7 | 29697191 | 29699187 | 1996 | LI\_7 | LOSS |
| 7 | 31266237 | 31278978 | 12741 | LI\_2,LI\_3\_R,LI\_5 | LOSS |
| 8 | 157378 | 202883 | 45505 | LI\_10,LI\_11,LI\_12,LI\_4,LI\_8\_R | LOSS |
| 8 | 15437515 | 15466850 | 29335 | LI\_7 | GAIN |
| 8 | 16570088 | 16580656 | 10568 | LI\_9 | GAIN |
| 9 | 5602283 | 5604846 | 2563 | LI\_9 | GAIN |
| 9 | 9156044 | 9160537 | 4493 | LI\_10,LI\_15 | LOSS |
| 9 | 21327153 | 21327678 | 525 | LI\_8\_R | LOSS |
| 10 | 2053074 | 2056292 | 3218 | LI\_4 | GAIN |
| 11 | 13391667 | 13412283 | 20616 | LI\_12,LI\_14,LI\_15 | LOSS |
| 12 | 1407088 | 1672735 | 265647 | LI\_4 | GAIN |
| 12 | 2158256 | 2158611 | 355 | LI\_9 | GAIN |
| 13 | 1136171 | 1143178 | 7007 | LI\_16 | LOSS |
| 13 | 3647002 | 3647419 | 417 | LI\_4 | LOSS |
| 13 | 5377387 | 5381011 | 3624 | LI\_11 | GAIN |
| 13 | 7021881 | 7025909 | 4028 | LI\_4 | LOSS |
| 13 | 7202531 | 7206406 | 3875 | LI\_10,LI\_13 | LOSS |
| 14 | 777214 | 798132 | 20918 | LI\_10 | GAIN |
| 14 | 8270701 | 8288943 | 18242 | LI\_5 | GAIN |
| 14 | 14169357 | 14183169 | 13812 | LI\_9 | GAIN |
| 15 | 5531575 | 5541371 | 9796 | LI\_13 | GAIN |
| 15 | 8554518 | 8555460 | 942 | LI\_10,LI\_11 | LOSS |
| 15 | 10788530 | 10811194 | 22664 | LI\_4 | GAIN |
| 16 | 219031 | 306007 | 86976 | LI\_9,LI\_3\_R,LI\_14,LI\_6,LI\_11,  LI\_13,LI\_15,LI\_16 | GAIN |
| 17 | 1863910 | 1864637 | 727 | LI\_1,LI\_3\_R | LOSS |
| 17 | 1973371 | 1975564 | 2193 | LI\_6 | LOSS |
| 17 | 10386087 | 10407714 | 21627 | LI\_7 | GAIN |
| 19 | 9967973 | 9973808 | 5835 | LI\_16 | GAIN |
| 20 | 1946946 | 1950706 | 3760 | LI\_12,LI\_15 | LOSS |
| 21 | 474196 | 477570 | 3374 | LI\_14 | GAIN |
| 21 | 2752552 | 2757496 | 4944 | LI\_7 | GAIN |
| 21 | 3518438 | 3522020 | 3582 | LI\_10 | LOSS |
| 21 | 3659215 | 3661071 | 1856 | LI\_15 | LOSS |
| 23 | 1667735 | 1683487 | 15752 | LI\_6 | GAIN |
| 23 | 3178691 | 3189074 | 10383 | LI\_7 | GAIN |
| 25 | 1367825 | 1368519 | 694 | LI\_7 | GAIN |
| 26 | 628372 | 635367 | 6995 | LI\_9 | GAIN |
| 27 | 544009 | 730872 | 186863 | LI\_5 | GAIN |
| 27 | 3136238 | 3136779 | 541 | LI\_14,LI\_16 | LOSS |
| 28 | 1514399 | 1517816 | 3417 | LI\_7 | GAIN |
| 28 | 3060312 | 3062116 | 1804 | LI\_10,LI\_12,LI\_15 | LOSS |
| 1 | 9259807 | 9263237 | 3430 | MB\_14 | GAIN |
| 1 | 34232188 | 34242449 | 10261 | MB\_11,MB\_13,MB\_14,MB\_8 | LOSS |
| 1 | 38278789 | 38289573 | 10784 | MB\_14 | LOSS |
| 1 | 42816757 | 42823179 | 6422 | MB\_9 | LOSS |
| 1 | 54569850 | 54571368 | 1518 | MB\_10 | LOSS |
| 1 | 77596019 | 77619334 | 23315 | MB\_13 | GAIN |
| 1 | 78851811 | 78931472 | 79661 | MB\_16 | GAIN |
| 1 | 78999223 | 79091079 | 91856 | MB\_16 | GAIN |
| 1 | 137179950 | 137183097 | 3147 | MB\_10 | GAIN |
| 1 | 139290303 | 139376850 | 86547 | MB\_1,MB\_10 | GAIN |
| 1 | 177529984 | 177537827 | 7843 | MB\_13 | LOSS |
| 1 | 179187409 | 179193848 | 6439 | MB\_14 | LOSS |
| 1 | 180949032 | 180957360 | 8328 | MB\_13 | LOSS |
| 1 | 181735053 | 181742346 | 7293 | MB\_13 | GAIN |
| 1 | 194701436 | 194715342 | 13906 | MB\_1 | LOSS |
| 2 | 7704086 | 7705442 | 1356 | MB\_11,MB\_4 | LOSS |
| 2 | 11622978 | 11624639 | 1661 | MB\_14,MB\_16,MB\_2 | LOSS |
| 2 | 63303760 | 63326303 | 22543 | MB\_1 | GAIN |
| 2 | 71929233 | 71953128 | 23895 | MB\_7 | GAIN |
| 2 | 72023967 | 72033615 | 9648 | MB\_12 | GAIN |
| 2 | 86814986 | 86821326 | 6340 | MB\_11 | LOSS |
| 2 | 117216281 | 117223458 | 7177 | MB\_16 | GAIN |
| 2 | 129267623 | 129269192 | 1569 | MB\_8 | LOSS |
| 2 | 139983056 | 139987280 | 4224 | MB\_11 | LOSS |
| 3 | 5336469 | 5365139 | 28670 | MB\_16,MB\_6,MB\_11,MB\_3,  MB\_2 | GAIN |
| 3 | 34095935 | 34101091 | 5156 | MB\_3,MB\_4,MB\_5,MB\_6,  MB\_7,  MB\_8,MB\_9 | LOSS |
| 3 | 36114091 | 36119498 | 5407 | MB\_3,MB\_4,MB\_5,MB\_9 | LOSS |
| 3 | 36491792 | 36499933 | 8141 | MB\_8 | LOSS |
| 3 | 36593046 | 36597882 | 4836 | MB\_5,MB\_6 | LOSS |
| 3 | 36639251 | 36645136 | 5885 | MB\_5,MB\_6 | LOSS |
| 3 | 40256767 | 40259368 | 2601 | MB\_14 | LOSS |
| 3 | 62353496 | 62354043 | 547 | MB\_6 | LOSS |
| 3 | 107454355 | 107455846 | 1491 | MB\_11 | LOSS |
| 4 | 51219942 | 51231546 | 11604 | MB\_2 | GAIN |
| 4 | 56026210 | 56043376 | 17166 | MB\_11,MB\_9 | GAIN |
| 4 | 61027539 | 61080022 | 52483 | MB\_12,MB\_9,MB\_7 | GAIN |
| 4 | 73092714 | 73104673 | 11959 | MB\_14 | GAIN |
| 5 | 1954724 | 1961355 | 6631 | MB\_9 | LOSS |
| 5 | 11921964 | 11925669 | 3705 | MB\_4 | GAIN |
| 5 | 23910847 | 23918123 | 7276 | MB\_11,MB\_12,MB\_2,MB\_3,  MB\_5,MB\_6,MB\_1 | LOSS |
| 8 | 157378 | 202883 | 45505 | MB\_11,MB\_13,MB\_3,MB\_4,  MB\_14 | LOSS |
| 9 | 8133230 | 8138012 | 4782 | MB\_1,MB\_2,MB\_3,MB\_5,  MB\_13,  MB\_16,MB\_6 | LOSS |
| 9 | 21327153 | 21328896 | 1743 | MB\_9 | LOSS |
| 12 | 10922550 | 10923116 | 566 | MB\_7 | GAIN |
| 12 | 14395236 | 14395698 | 462 | MB\_14,MB\_9 | LOSS |
| 13 | 4310530 | 4312716 | 2186 | MB\_1,MB\_10,MB\_13 | LOSS |
| 13 | 7202082 | 7203839 | 1757 | MB\_13,MB\_1,MB\_10,MB\_7 | LOSS |
| 14 | 8271822 | 8276372 | 4550 | MB\_11,MB\_8 | GAIN |
| 14 | 15124958 | 15132783 | 7825 | MB\_2 | GAIN |
| 16 | 245855 | 330020 | 84165 | MB\_12,MB\_2,MB\_11 | GAIN |
| 18 | 693906 | 695111 | 1205 | MB\_11 | LOSS |
| 18 | 699667 | 706189 | 6522 | MB\_11 | LOSS |
| 20 | 6408986 | 6410289 | 1303 | MB\_10 | LOSS |
| 22 | 3527384 | 3534897 | 7513 | MB\_12,MB\_16,MB\_3 | LOSS |
| 26 | 1823618 | 1829006 | 5388 | MB\_9 | LOSS |
| 27 | 463174 | 483459 | 20285 | MB\_14 | GAIN |
| 27 | 533750 | 774006 | 240256 | MB\_12,MB\_2 | GAIN |
| 1 | 1317654 | 1324805 | 7151 | MI\_10 | LOSS |
| 1 | 3224832 | 3246090 | 21258 | MI\_15,MI\_7,MI\_8,MI\_8 | LOSS |
| 1 | 4013951 | 4044109 | 30158 | MI\_13,MI\_11,MI\_1 | GAIN |
| 1 | 11634775 | 11639454 | 4679 | MI\_2 | LOSS |
| 1 | 20473440 | 20474632 | 1192 | MI\_9 | GAIN |
| 1 | 23812864 | 23817003 | 4139 | MI\_1,MI\_10,MI\_13,MI\_14,  MI\_6,  MI\_9 | LOSS |
| 1 | 32372412 | 32376897 | 4485 | MI\_12,MI\_2 | LOSS |
| 1 | 32463008 | 32546752 | 83744 | MI\_4\_2 | GAIN |
| 1 | 43001844 | 43066722 | 64878 | MI\_5,MI\_6,MI\_7,MI\_14,MI\_9 | GAIN |
| 1 | 55013914 | 55020128 | 6214 | MI\_2 | GAIN |
| 1 | 62279659 | 62285139 | 5480 | MI\_14 | LOSS |
| 1 | 72345535 | 72351290 | 5755 | MI\_5 | GAIN |
| 1 | 75709646 | 75719210 | 9564 | MI\_15 | GAIN |
| 1 | 79024615 | 79030474 | 5859 | MI\_4\_2 | GAIN |
| 1 | 94564270 | 94566171 | 1901 | MI\_4\_2 | GAIN |
| 1 | 95963827 | 95965305 | 1478 | MI\_3 | LOSS |
| 1 | 109100362 | 109108759 | 8397 | MI\_15 | LOSS |
| 1 | 134253652 | 134257407 | 3755 | MI\_4\_2 | GAIN |
| 1 | 146282800 | 146286641 | 3841 | MI\_14 | GAIN |
| 1 | 147717421 | 147773690 | 56269 | MI\_4\_2 | GAIN |
| 1 | 149877721 | 149880263 | 2542 | MI\_7 | LOSS |
| 1 | 150669350 | 150840710 | 171360 | MI\_4\_2 | GAIN |
| 1 | 160947041 | 161061487 | 114446 | MI\_7 | LOSS |
| 1 | 165869717 | 165871075 | 1358 | MI\_3 | GAIN |
| 2 | 2680117 | 2681152 | 1035 | MI\_6 | GAIN |
| 2 | 11209864 | 11275503 | 65639 | MI\_4\_2 | GAIN |
| 2 | 28849148 | 28857742 | 8594 | MI\_15,MI\_16 | GAIN |
| 2 | 61903581 | 61906355 | 2774 | MI\_4\_2,MI\_5 | LOSS |
| 2 | 79145360 | 79168177 | 22817 | MI\_14 | GAIN |
| 2 | 79680088 | 79703232 | 23144 | MI\_4\_2 | GAIN |
| 2 | 131836214 | 131845973 | 9759 | MI\_10 | GAIN |
| 2 | 132550262 | 132555172 | 4910 | MI\_4\_2,MI\_12,MI\_2,MI\_5 | LOSS |
| 2 | 143156984 | 143202642 | 45658 | MI\_4\_2 | GAIN |
| 3 | 6261877 | 6263795 | 1918 | MI\_10,MI\_15 | LOSS |
| 3 | 22817122 | 22824497 | 7375 | MI\_11 | GAIN |
| 3 | 30251485 | 30260622 | 9137 | MI\_4\_2 | GAIN |
| 3 | 34352233 | 34363532 | 11299 | MI\_4\_2 | GAIN |
| 3 | 36801293 | 36822942 | 21649 | MI\_4\_2 | GAIN |
| 3 | 56773444 | 56810263 | 36819 | MI\_4\_2 | GAIN |
| 3 | 59406354 | 59411276 | 4922 | MI\_4\_2 | GAIN |
| 3 | 64211482 | 64214927 | 3445 | MI\_4\_2 | GAIN |
| 3 | 83221366 | 83265188 | 43822 | MI\_4\_2 | GAIN |
| 3 | 102224929 | 102246295 | 21366 | MI\_5,MI\_6,MI\_9 | LOSS |
| 3 | 104628962 | 104649974 | 21012 | MI\_1 | GAIN |
| 4 | 10452517 | 10476672 | 24155 | MI\_4\_2 | GAIN |
| 4 | 18972227 | 18975272 | 3045 | MI\_2 | LOSS |
| 4 | 39852446 | 39853779 | 1333 | MI\_7 | GAIN |
| 4 | 82566185 | 82575845 | 9660 | MI\_4\_2 | GAIN |
| 5 | 6980375 | 6982401 | 2026 | MI\_4\_2 | GAIN |
| 5 | 9160978 | 9164588 | 3610 | MI\_4\_2 | LOSS |
| 5 | 30836594 | 30904211 | 67617 | MI\_4\_2 | GAIN |
| 5 | 34488308 | 34617188 | 128880 | MI\_4\_2 | GAIN |
| 5 | 42318001 | 42353346 | 35345 | MI\_4\_2 | GAIN |
| 5 | 55701139 | 55705607 | 4468 | MI\_7 | GAIN |
| 6 | 1361 | 42885 | 41524 | MI\_4\_2,MI\_1 | GAIN |
| 7 | 35030551 | 35036989 | 6438 | MI\_8 | LOSS |
| 8 | 16510295 | 16517358 | 7063 | MI\_7 | GAIN |
| 8 | 26060670 | 26063448 | 2778 | MI\_13 | GAIN |
| 9 | 753605 | 763648 | 10043 | MI\_2 | GAIN |
| 9 | 1891690 | 1895268 | 3578 | MI\_11 | GAIN |
| 9 | 6114018 | 6121595 | 7577 | MI\_16,MI\_6 | LOSS |
| 9 | 8133230 | 8138012 | 4782 | MI\_12 | LOSS |
| 10 | 9223993 | 9242432 | 18439 | MI\_4\_2 | GAIN |
| 10 | 17944255 | 17945851 | 1596 | MI\_7 | LOSS |
| 11 | 4962435 | 4965379 | 2944 | MI\_14 | LOSS |
| 11 | 13051825 | 13066669 | 14844 | MI\_12,MI\_16,MI\_2,MI\_3,MI\_6 | LOSS |
| 12 | 2081163 | 2090078 | 8915 | MI\_12,MI\_15,MI\_8 | GAIN |
| 13 | 1126898 | 1143178 | 16280 | MI\_10,MI\_5 | GAIN |
| 13 | 4312184 | 4312716 | 532 | MI\_1,MI\_10,MI\_14,MI\_5 | LOSS |
| 14 | 1514372 | 1515896 | 1524 | MI\_5 | LOSS |
| 14 | 8195675 | 8198667 | 2992 | MI\_2 | LOSS |
| 14 | 15145902 | 15148673 | 2771 | MI\_14 | GAIN |
| 15 | 4390371 | 4398451 | 8080 | MI\_4\_2 | LOSS |
| 15 | 8711904 | 8720968 | 9064 | MI\_10,MI\_13 | GAIN |
| 16 | 251597 | 298221 | 46624 | MI\_8,MI\_9 | GAIN |
| 18 | 888250 | 888631 | 381 | MI\_1,MI\_10,MI\_11,MI\_12,  MI\_14,MI\_2,MI\_3,MI\_6 | LOSS |
| 19 | 1999676 | 2004067 | 4391 | MI\_10,MI\_4\_2,MI\_6,MI\_7 | LOSS |
| 20 | 8646822 | 8655741 | 8919 | MI\_11,MI\_10,MI\_3 | LOSS |
| 23 | 1592366 | 1593082 | 716 | MI\_11 | GAIN |
| 24 | 3438826 | 3440881 | 2055 | MI\_3 | LOSS |
| 26 | 4891341 | 4898142 | 6801 | MI\_16 | LOSS |
| 27 | 467647 | 472507 | 4860 | MI\_6 | LOSS |
| 1 | 3218895 | 3246090 | 27195 | PI\_10,PI\_11,PI\_5,PI\_8,  PI\_9,PI\_5 | LOSS |
| 1 | 11441978 | 11447557 | 5579 | PI\_12 | LOSS |
| 1 | 11724225 | 11728415 | 4190 | PI\_14 | LOSS |
| 1 | 13205120 | 13206656 | 1536 | PI\_14 | LOSS |
| 1 | 15896361 | 15926518 | 30157 | PI\_9 | GAIN |
| 1 | 18180690 | 18183579 | 2889 | PI\_13 | GAIN |
| 1 | 20037753 | 20042920 | 5167 | PI\_14 | LOSS |
| 1 | 23247889 | 23252232 | 4343 | PI\_11 | GAIN |
| 1 | 32503622 | 32511387 | 7765 | PI\_14 | GAIN |
| 1 | 36840282 | 36889950 | 49668 | PI\_4 | GAIN |
| 1 | 39726847 | 39729063 | 2216 | PI\_13 | LOSS |
| 1 | 40234626 | 40249288 | 14662 | PI\_11 | GAIN |
| 1 | 41682591 | 41698727 | 16136 | PI\_4 | GAIN |
| 1 | 57964239 | 57980899 | 16660 | PI\_15 | GAIN |
| 1 | 64361722 | 64367347 | 5625 | PI\_9 | GAIN |
| 1 | 64876486 | 64884121 | 7635 | PI\_4 | LOSS |
| 1 | 68551124 | 68552422 | 1298 | PI\_13 | LOSS |
| 1 | 71486860 | 71522594 | 35734 | PI\_15 | GAIN |
| 1 | 75516142 | 75520450 | 4308 | PI\_14 | GAIN |
| 1 | 76098060 | 76113281 | 15221 | PI\_4 | LOSS |
| 1 | 77596019 | 77617319 | 21300 | PI\_3 | GAIN |
| 1 | 82035758 | 82049063 | 13305 | PI\_11 | GAIN |
| 1 | 90915258 | 90925139 | 9881 | PI\_2 | LOSS |
| 1 | 93609076 | 93618668 | 9592 | PI\_8 | GAIN |
| 1 | 94209271 | 94214144 | 4873 | PI\_14 | LOSS |
| 1 | 101250973 | 101269092 | 18119 | PI\_4 | GAIN |
| 1 | 130884485 | 130908797 | 24312 | PI\_4 | GAIN |
| 1 | 139290303 | 139417687 | 127384 | PI\_1,PI\_10 | GAIN |
| 1 | 139935853 | 139939921 | 4068 | PI\_2 | LOSS |
| 1 | 153533922 | 153537110 | 3188 | PI\_13 | LOSS |
| 1 | 154369977 | 154380331 | 10354 | PI\_11 | GAIN |
| 1 | 155623091 | 155629031 | 5940 | PI\_14 | GAIN |
| 1 | 163164808 | 163521089 | 356281 | PI\_16 | LOSS |
| 1 | 178962865 | 178964753 | 1888 | PI\_1,PI\_13 | LOSS |
| 1 | 181720987 | 181754708 | 33721 | PI\_14,PI\_3 | GAIN |
| 1 | 181864092 | 181870278 | 6186 | PI\_14 | GAIN |
| 1 | 184907096 | 184914376 | 7280 | PI\_10 | LOSS |
| 1 | 187648204 | 187657075 | 8871 | PI\_9 | LOSS |
| 1 | 189464714 | 189465405 | 691 | PI\_12 | GAIN |
| 1 | 194347634 | 194467211 | 119577 | PI\_16,PI\_3 | GAIN |
| 2 | 15674407 | 15680332 | 5925 | PI\_10 | LOSS |
| 2 | 20679230 | 20682669 | 3439 | PI\_13 | LOSS |
| 2 | 25868266 | 25876407 | 8141 | PI\_12 | GAIN |
| 2 | 29089897 | 29096904 | 7007 | PI\_1 | LOSS |
| 2 | 46854428 | 46861745 | 7317 | PI\_7 | LOSS |
| 2 | 47107428 | 47113922 | 6494 | PI\_11 | GAIN |
| 2 | 54188096 | 54216108 | 28012 | PI\_14 | GAIN |
| 2 | 57565703 | 57570258 | 4555 | PI\_13 | GAIN |
| 2 | 61223815 | 61234190 | 10375 | PI\_13 | GAIN |
| 2 | 63596395 | 63606171 | 9776 | PI\_16,PI\_3 | LOSS |
| 2 | 70070949 | 70080701 | 9752 | PI\_12 | GAIN |
| 2 | 108035821 | 108043134 | 7313 | PI\_11 | LOSS |
| 2 | 108420471 | 108433824 | 13353 | PI\_4 | GAIN |
| 2 | 116777703 | 116781914 | 4211 | PI\_3 | LOSS |
| 2 | 118393587 | 118442146 | 48559 | PI\_4 | GAIN |
| 2 | 122097779 | 122104510 | 6731 | PI\_4 | LOSS |
| 2 | 122333875 | 122338519 | 4644 | PI\_11 | GAIN |
| 2 | 129104580 | 129169307 | 64727 | PI\_2,PI\_3 | GAIN |
| 2 | 138451360 | 138463990 | 12630 | PI\_11 | GAIN |
| 2 | 143235268 | 143238971 | 3703 | PI\_7 | GAIN |
| 3 | 4643013 | 4662485 | 19472 | PI\_13 | GAIN |
| 3 | 19091474 | 19120795 | 29321 | PI\_16 | GAIN |
| 3 | 34694086 | 34695062 | 976 | PI\_9 | LOSS |
| 3 | 35493517 | 35501706 | 8189 | PI\_10 | GAIN |
| 3 | 36667591 | 36668879 | 1288 | PI\_10 | GAIN |
| 3 | 38249302 | 38253923 | 4621 | PI\_7 | GAIN |
| 3 | 46991968 | 46995596 | 3628 | PI\_1 | GAIN |
| 3 | 54087820 | 54093710 | 5890 | PI\_4 | GAIN |
| 3 | 60637923 | 60641744 | 3821 | PI\_16 | GAIN |
| 3 | 61112549 | 61114138 | 1589 | PI\_16 | GAIN |
| 3 | 61688227 | 61704997 | 16770 | PI\_15 | GAIN |
| 3 | 66272850 | 66279076 | 6226 | PI\_15 | LOSS |
| 3 | 98290080 | 98291559 | 1479 | PI\_10 | GAIN |
| 3 | 106305069 | 106306023 | 954 | PI\_16 | GAIN |
| 4 | 8607594 | 8629823 | 22229 | PI\_11 | GAIN |
| 4 | 30843777 | 30888475 | 44698 | PI\_11 | GAIN |
| 4 | 32038130 | 32045970 | 7840 | PI\_1 | LOSS |
| 4 | 37876329 | 37886316 | 9987 | PI\_13 | GAIN |
| 4 | 60584245 | 60604379 | 20134 | PI\_11 | GAIN |
| 4 | 61823268 | 61834915 | 11647 | PI\_3,PI\_4,PI\_1,PI\_14,  PI\_16, PI\_5 | LOSS |
| 4 | 65420193 | 65438719 | 18526 | PI\_10 | LOSS |
| 4 | 66546653 | 66561413 | 14760 | PI\_16 | GAIN |
| 4 | 69780004 | 69783759 | 3755 | PI\_14 | GAIN |
| 4 | 77000679 | 77001964 | 1285 | PI\_9 | GAIN |
| 4 | 77667355 | 77681253 | 13898 | PI\_9 | GAIN |
| 4 | 79270341 | 79281903 | 11562 | PI\_8 | GAIN |
| 4 | 81409594 | 81425814 | 16220 | PI\_8 | GAIN |
| 4 | 85254962 | 85395894 | 140932 | PI\_13,PI\_5,PI\_1 | GAIN |
| 4 | 86222920 | 86258708 | 35788 | PI\_4 | GAIN |
| 5 | 240948 | 310523 | 69575 | PI\_4 | GAIN |
| 5 | 5183559 | 5190380 | 6821 | PI\_3 | GAIN |
| 5 | 11815839 | 11822303 | 6464 | PI\_1 | LOSS |
| 5 | 19718770 | 19721817 | 3047 | PI\_4 | GAIN |
| 5 | 20474613 | 20478312 | 3699 | PI\_10 | GAIN |
| 5 | 36018763 | 36030838 | 12075 | PI\_1 | GAIN |
| 5 | 48921509 | 48936803 | 15294 | PI\_10,PI\_13,PI\_8 | LOSS |
| 5 | 49072565 | 49084257 | 11692 | PI\_5,PI\_9 | LOSS |
| 5 | 55934915 | 55988044 | 53129 | PI\_4 | GAIN |
| 5 | 56614989 | 56766967 | 151978 | PI\_4,PI\_15,PI\_12 | GAIN |
| 5 | 58823251 | 58823303 | 52 | PI\_7 | GAIN |
| 6 | 1715628 | 1722140 | 6512 | PI\_13 | GAIN |
| 6 | 3089155 | 3102715 | 13560 | PI\_1 | GAIN |
| 6 | 3245000 | 3248341 | 3341 | PI\_2 | LOSS |
| 6 | 4588275 | 4608888 | 20613 | PI\_12 | LOSS |
| 6 | 15410672 | 15418016 | 7344 | PI\_12 | LOSS |
| 6 | 16571491 | 16578846 | 7355 | PI\_12 | LOSS |
| 6 | 17141315 | 17144773 | 3458 | PI\_9 | LOSS |
| 6 | 25614355 | 25623899 | 9544 | PI\_16 | GAIN |
| 6 | 27241761 | 27244509 | 2748 | PI\_9 | LOSS |
| 7 | 23994881 | 23998014 | 3133 | PI\_1 | LOSS |
| 7 | 24023402 | 24035680 | 12278 | PI\_11 | GAIN |
| 7 | 34266357 | 34285445 | 19088 | PI\_13 | GAIN |
| 8 | 4472273 | 4479576 | 7303 | PI\_14 | GAIN |
| 8 | 8734809 | 8910898 | 176089 | PI\_9 | LOSS |
| 8 | 11941233 | 11955539 | 14306 | PI\_4 | GAIN |
| 9 | 8133230 | 8138012 | 4782 | PI\_11,PI\_2 | LOSS |
| 9 | 17383018 | 17384534 | 1516 | PI\_13,PI\_4 | COMPLEX |
| 9 | 19132182 | 19134581 | 2399 | PI\_4 | GAIN |
| 9 | 22082371 | 22084901 | 2530 | PI\_16 | GAIN |
| 10 | 589629 | 608449 | 18820 | PI\_9 | GAIN |
| 10 | 8345612 | 8354399 | 8787 | PI\_7 | GAIN |
| 10 | 16460511 | 16464740 | 4229 | PI\_3 | LOSS |
| 10 | 18235411 | 18238416 | 3005 | PI\_8 | LOSS |
| 10 | 19862709 | 19866067 | 3358 | PI\_15 | GAIN |
| 11 | 5478524 | 5481519 | 2995 | PI\_1 | GAIN |
| 11 | 9223312 | 9232374 | 9062 | PI\_16 | GAIN |
| 11 | 18005900 | 18013411 | 7511 | PI\_4 | GAIN |
| 12 | 1122474 | 1223234 | 100760 | PI\_16,PI\_3,PI\_1,PI\_14,PI\_5,  PI\_9,PI\_2,PI\_12 | GAIN |
| 12 | 4214092 | 4215737 | 1645 | PI\_16,PI\_3 | LOSS |
| 12 | 4360784 | 4371186 | 10402 | PI\_9 | LOSS |
| 12 | 5138363 | 5152260 | 13897 | PI\_12 | GAIN |
| 12 | 15102030 | 15106137 | 4107 | PI\_5 | GAIN |
| 13 | 1120443 | 1128603 | 8160 | PI\_13 | GAIN |
| 13 | 7306384 | 7307816 | 1432 | PI\_14 | LOSS |
| 13 | 8564174 | 8569610 | 5436 | PI\_13 | GAIN |
| 13 | 9282142 | 9282445 | 303 | PI\_1 | GAIN |
| 13 | 9497347 | 9497640 | 293 | PI\_15 | LOSS |
| 14 | 6295255 | 6300266 | 5011 | PI\_14 | GAIN |
| 14 | 6455192 | 6463527 | 8335 | PI\_4 | GAIN |
| 14 | 7308112 | 7312732 | 4620 | PI\_4 | GAIN |
| 14 | 8195675 | 8198667 | 2992 | PI\_3 | LOSS |
| 14 | 9755259 | 9759074 | 3815 | PI\_4 | LOSS |
| 15 | 910061 | 913281 | 3220 | PI\_11 | GAIN |
| 15 | 2354124 | 2362299 | 8175 | PI\_12 | GAIN |
| 15 | 2804884 | 2809037 | 4153 | PI\_4 | GAIN |
| 16 | 215410 | 315114 | 99704 | PI\_13,PI\_7,PI\_5,PI\_1 | COMPLEX |
| 17 | 4509860 | 4512922 | 3062 | PI\_14 | GAIN |
| 17 | 5611710 | 5614167 | 2457 | PI\_13 | GAIN |
| 17 | 8822007 | 8826934 | 4927 | PI\_3 | LOSS |
| 18 | 2560868 | 2564292 | 3424 | PI\_11 | GAIN |
| 18 | 3518846 | 3519650 | 804 | PI\_7 | GAIN |
| 18 | 5960569 | 5963938 | 3369 | PI\_4 | GAIN |
| 19 | 2482316 | 2489696 | 7380 | PI\_9 | GAIN |
| 19 | 8440799 | 8450059 | 9260 | PI\_14 | GAIN |
| 20 | 7179441 | 7211282 | 31841 | PI\_4 | GAIN |
| 20 | 7452654 | 7454307 | 1653 | PI\_14 | GAIN |
| 20 | 8648685 | 8655741 | 7056 | PI\_9 | LOSS |
| 21 | 2854020 | 2854666 | 646 | PI\_1 | GAIN |
| 22 | 3898 | 9154 | 5256 | PI\_1 | LOSS |
| 22 | 486545 | 489696 | 3151 | PI\_7 | LOSS |
| 23 | 3537025 | 3552310 | 15285 | PI\_4 | GAIN |
| 23 | 5256953 | 5257940 | 987 | PI\_4 | GAIN |
| 24 | 446179 | 459648 | 13469 | PI\_11 | GAIN |
| 24 | 5460205 | 5476146 | 15941 | PI\_12 | GAIN |
| 25 | 75666 | 76674 | 1008 | PI\_13 | GAIN |
| 25 | 800162 | 801901 | 1739 | PI\_14 | LOSS |
| 25 | 988739 | 989777 | 1038 | PI\_9 | LOSS |
| 27 | 467647 | 472507 | 4860 | PI\_15 | LOSS |
| 27 | 912632 | 913923 | 1291 | PI\_13 | LOSS |
| 27 | 1926235 | 1929503 | 3268 | PI\_16 | GAIN |
| 28 | 425658 | 428045 | 2387 | PI\_16,PI\_7 | LOSS |
| 28 | 1184191 | 1196218 | 12027 | PI\_16 | GAIN |
| 28 | 2618390 | 2618786 | 396 | PI\_15 | LOSS |
| 28 | 3100523 | 3108956 | 8433 | PI\_13 | GAIN |
| 1 | 712002 | 738339 | 26337 | SA\_2,SA\_3,SA\_5 | GAIN |
| 1 | 3927484 | 3931561 | 4077 | SA\_9 | GAIN |
| 1 | 4006738 | 4044109 | 37371 | SA\_16,SA\_3,SA\_13 | GAIN |
| 1 | 35792995 | 35796117 | 3122 | SA\_11 | LOSS |
| 1 | 42054978 | 42064075 | 9097 | SA\_9 | GAIN |
| 1 | 44015316 | 44024068 | 8752 | SA\_11 | LOSS |
| 1 | 77596019 | 77621395 | 25376 | SA\_13 | GAIN |
| 1 | 86103785 | 86111630 | 7845 | SA\_1 | GAIN |
| 1 | 88087545 | 88092227 | 4682 | SA\_4 | GAIN |
| 1 | 91897368 | 91909088 | 11720 | SA\_3 | LOSS |
| 1 | 98042613 | 98046884 | 4271 | SA\_4 | GAIN |
| 1 | 98616097 | 98621166 | 5069 | SA\_9 | LOSS |
| 1 | 133550038 | 133566314 | 16276 | SA\_9 | GAIN |
| 1 | 135000914 | 135002598 | 1684 | SA\_5 | LOSS |
| 1 | 139290303 | 139384505 | 94202 | SA\_13,SA\_2,SA\_3,SA\_6 | GAIN |
| 1 | 160947041 | 161110014 | 162973 | SA\_16 | GAIN |
| 1 | 161374003 | 161376417 | 2414 | SA\_5 | GAIN |
| 1 | 163136323 | 163521089 | 384766 | SA\_1,SA\_14,SA\_10,SA\_16 | LOSS |
| 1 | 175263746 | 175284778 | 21032 | SA\_2 | GAIN |
| 1 | 184911407 | 184915122 | 3715 | SA\_12,SA\_4 | LOSS |
| 1 | 188586941 | 188592484 | 5543 | SA\_12 | LOSS |
| 2 | 27799754 | 27801335 | 1581 | SA\_14 | LOSS |
| 2 | 54737872 | 54749833 | 11961 | SA\_7,SA\_12,SA\_4 | LOSS |
| 2 | 61903581 | 61906355 | 2774 | SA\_8 | LOSS |
| 2 | 71929233 | 71954714 | 25481 | SA\_10 | GAIN |
| 2 | 73831264 | 73847626 | 16362 | SA\_10,SA\_6 | GAIN |
| 2 | 76880818 | 76893143 | 12325 | SA\_6 | GAIN |
| 2 | 78844264 | 78854658 | 10394 | SA\_10 | LOSS |
| 2 | 82274348 | 82283458 | 9110 | SA\_4 | GAIN |
| 2 | 82326757 | 82331888 | 5131 | SA\_5 | GAIN |
| 2 | 97088838 | 97099282 | 10444 | SA\_7 | GAIN |
| 2 | 102386064 | 102396900 | 10836 | SA\_11 | GAIN |
| 2 | 113623482 | 113643659 | 20177 | SA\_5 | GAIN |
| 2 | 122101503 | 122103098 | 1595 | SA\_6 | LOSS |
| 2 | 129085437 | 129172949 | 87512 | SA\_1,SA\_14,SA\_4,SA\_13 | GAIN |
| 3 | 4305248 | 4321508 | 16260 | SA\_9 | GAIN |
| 3 | 78020691 | 78026532 | 5841 | SA\_16 | LOSS |
| 3 | 78513742 | 78517962 | 4220 | SA\_11 | GAIN |
| 3 | 89541217 | 89547453 | 6236 | SA\_7 | GAIN |
| 3 | 95499094 | 95517006 | 17912 | SA\_11 | GAIN |
| 4 | 6459515 | 6464278 | 4763 | SA\_14 | GAIN |
| 4 | 24898015 | 24916382 | 18367 | SA\_15 | GAIN |
| 4 | 30102774 | 30163522 | 60748 | SA\_14,SA\_9 | LOSS |
| 4 | 33502139 | 33509354 | 7215 | SA\_16 | GAIN |
| 4 | 59237251 | 59238335 | 1084 | SA\_15 | LOSS |
| 4 | 81412294 | 81431796 | 19502 | SA\_7 | GAIN |
| 5 | 6791975 | 6807441 | 15466 | SA\_9 | GAIN |
| 5 | 14852222 | 14865343 | 13121 | SA\_11 | LOSS |
| 5 | 19630190 | 19707342 | 77152 | SA\_8,SA\_10,SA\_12 | COMPLEX |
| 5 | 29069437 | 29080034 | 10597 | SA\_7 | GAIN |
| 5 | 41923441 | 42121531 | 198090 | SA\_14,SA\_2,SA\_8,  SA\_10, SA\_11 | GAIN |
| 5 | 43482910 | 43497003 | 14093 | SA\_8 | GAIN |
| 5 | 45230370 | 45232473 | 2103 | SA\_11 | LOSS |
| 5 | 56625359 | 56766967 | 141608 | SA\_4 | GAIN |
| 6 | 10654524 | 10680799 | 26275 | SA\_6 | GAIN |
| 6 | 10704786 | 10731614 | 26828 | SA\_5 | GAIN |
| 6 | 12476598 | 12534084 | 57486 | SA\_16 | LOSS |
| 7 | 2638088 | 2651394 | 13306 | SA\_6 | LOSS |
| 7 | 8164811 | 8176551 | 11740 | SA\_12 | LOSS |
| 7 | 17668992 | 17678986 | 9994 | SA\_9 | GAIN |
| 7 | 18624373 | 18631083 | 6710 | SA\_11 | LOSS |
| 7 | 20060536 | 20064374 | 3838 | SA\_10 | LOSS |
| 7 | 23432696 | 23438586 | 5890 | SA\_7 | LOSS |
| 7 | 34736224 | 34747585 | 11361 | SA\_13 | GAIN |
| 8 | 25577287 | 25582258 | 4971 | SA\_16 | LOSS |
| 10 | 7162636 | 7165946 | 3310 | SA\_1 | GAIN |
| 10 | 15613783 | 15644242 | 30459 | SA\_12 | LOSS |
| 10 | 16768901 | 16771909 | 3008 | SA\_6 | GAIN |
| 10 | 18103633 | 18106871 | 3238 | SA\_3 | LOSS |
| 11 | 9226448 | 9235695 | 9247 | SA\_16 | GAIN |
| 11 | 12666424 | 12670482 | 4058 | SA\_16 | LOSS |
| 11 | 13050902 | 13072246 | 21344 | SA\_3 | LOSS |
| 11 | 17771921 | 17780560 | 8639 | SA\_7 | GAIN |
| 12 | 1122474 | 1223234 | 100760 | SA\_2,SA\_3,SA\_12,SA\_15,  SA\_8,SA\_10 | GAIN |
| 12 | 8979651 | 9006779 | 27128 | SA\_7,SA\_6 | GAIN |
| 13 | 14577833 | 14581514 | 3681 | SA\_13 | LOSS |
| 13 | 16995864 | 16998627 | 2763 | SA\_9 | GAIN |
| 14 | 777214 | 798132 | 20918 | SA\_12,SA\_4 | GAIN |
| 14 | 1661995 | 1664367 | 2372 | SA\_3 | LOSS |
| 14 | 8271822 | 8287465 | 15643 | SA\_14 | GAIN |
| 16 | 216711 | 330020 | 113309 | SA\_6,SA\_13,SA\_10,SA\_7 | GAIN |
| 17 | 1891058 | 1898872 | 7814 | SA\_13 | LOSS |
| 18 | 10228101 | 10229839 | 1738 | SA\_1 | LOSS |
| 19 | 2484083 | 2493424 | 9341 | SA\_3,SA\_15 | GAIN |
| 19 | 3414324 | 3415644 | 1320 | SA\_7 | GAIN |
| 19 | 6175580 | 6198717 | 23137 | SA\_9,SA\_12 | GAIN |
| 20 | 9380018 | 9382079 | 2061 | SA\_4 | GAIN |
| 22 | 3824813 | 3825071 | 258 | SA\_15 | GAIN |
| 23 | 19365 | 41759 | 22394 | SA\_5 | GAIN |
| 26 | 3549636 | 3555452 | 5816 | SA\_9 | GAIN |
| 26 | 4939026 | 4945581 | 6555 | SA\_13 | GAIN |
| 27 | 655362 | 730872 | 75510 | SA\_4,SA\_6 | GAIN |
| 27 | 2763442 | 2767149 | 3707 | SA\_9 | GAIN |
| 28 | 900944 | 916233 | 15289 | SA\_6 | GAIN |
| 1 | 3220733 | 3251128 | 30395 | SI\_10,SI\_13,SI\_14,SI\_15,  SI\_14 | LOSS |
| 1 | 17974844 | 17983725 | 8881 | SI\_6 | GAIN |
| 1 | 21065469 | 21099951 | 34482 | SI\_2 | GAIN |
| 1 | 28379369 | 28382637 | 3268 | SI\_1 | LOSS |
| 1 | 30456065 | 30464380 | 8315 | SI\_11 | GAIN |
| 1 | 32824810 | 32826891 | 2081 | SI\_13 | GAIN |
| 1 | 36236367 | 36252075 | 15708 | SI\_2 | GAIN |
| 1 | 43337259 | 43343246 | 5987 | SI\_1 | LOSS |
| 1 | 46954348 | 46977988 | 23640 | SI\_2 | GAIN |
| 1 | 71481449 | 71522594 | 41145 | SI\_9,SI\_1 | GAIN |
| 1 | 90706897 | 90710453 | 3556 | SI\_2,SI\_6 | LOSS |
| 1 | 93479822 | 93516055 | 36233 | SI\_2,SI\_13 | GAIN |
| 1 | 93775729 | 93803110 | 27381 | SI\_2 | GAIN |
| 1 | 99088395 | 99094316 | 5921 | SI\_11 | GAIN |
| 1 | 105233539 | 105238985 | 5446 | SI\_5 | GAIN |
| 1 | 112231619 | 112236512 | 4893 | SI\_15 | GAIN |
| 1 | 113433478 | 113477304 | 43826 | SI\_1,SI\_3,SI\_5,SI\_9 | GAIN |
| 1 | 113527039 | 113659727 | 132688 | SI\_3,SI\_5,SI\_9,SI\_1 | GAIN |
| 1 | 114412511 | 114435091 | 22580 | SI\_2 | GAIN |
| 1 | 116545042 | 116592957 | 47915 | SI\_2 | GAIN |
| 1 | 133202223 | 133207506 | 5283 | SI\_2 | GAIN |
| 1 | 148324090 | 148328215 | 4125 | SI\_3 | LOSS |
| 1 | 158145819 | 158158411 | 12592 | SI\_11 | GAIN |
| 1 | 181731621 | 181752254 | 20633 | SI\_10,SI\_6,SI\_12\_R,  SI\_13,SI\_14,  SI\_15,SI\_7,SI\_8 | GAIN |
| 2 | 928384 | 942023 | 13639 | SI\_13,SI\_14 | LOSS |
| 2 | 25859462 | 25952423 | 92961 | SI\_1,SI\_11,SI\_12\_R,SI\_5,  SI\_8,SI\_9,SI\_2 | LOSS |
| 2 | 27335793 | 27360988 | 25195 | SI\_1,SI\_14,SI\_5 | GAIN |
| 2 | 27471883 | 27478356 | 6473 | SI\_12\_R,SI\_9 | GAIN |
| 2 | 28266857 | 28321381 | 54524 | SI\_2,SI\_13 | GAIN |
| 2 | 32190085 | 32255964 | 65879 | SI\_2 | GAIN |
| 2 | 51709054 | 51749553 | 40499 | SI\_2 | GAIN |
| 2 | 55063690 | 55095520 | 31830 | SI\_9 | GAIN |
| 2 | 66013851 | 66065937 | 52086 | SI\_2 | GAIN |
| 2 | 81952642 | 81962048 | 9406 | SI\_1,SI\_4\_R,SI\_5 | LOSS |
| 2 | 83674703 | 83695919 | 21216 | SI\_2,SI\_10 | GAIN |
| 2 | 85115029 | 85119510 | 4481 | SI\_11 | GAIN |
| 2 | 86849998 | 86856411 | 6413 | SI\_1,SI\_5 | GAIN |
| 2 | 90305163 | 90314923 | 9760 | SI\_16,SI\_5 | GAIN |
| 2 | 94041568 | 94135075 | 93507 | SI\_2 | GAIN |
| 2 | 99727585 | 99734823 | 7238 | SI\_13 | GAIN |
| 2 | 122417706 | 122433674 | 15968 | SI\_15,SI\_16 | LOSS |
| 2 | 125351754 | 125354703 | 2949 | SI\_11 | GAIN |
| 2 | 129477998 | 129478452 | 454 | SI\_13,SI\_15,SI\_16 | LOSS |
| 2 | 138731319 | 138759199 | 27880 | SI\_6 | GAIN |
| 3 | 2437089 | 2441423 | 4334 | SI\_2 | GAIN |
| 3 | 9015436 | 9021140 | 5704 | SI\_1 | GAIN |
| 3 | 11556397 | 11570561 | 14164 | SI\_13 | GAIN |
| 3 | 19456437 | 19474613 | 18176 | SI\_2 | GAIN |
| 3 | 25213329 | 25249979 | 36650 | SI\_11 | GAIN |
| 3 | 38030440 | 38042818 | 12378 | SI\_11 | GAIN |
| 3 | 39426685 | 39431324 | 4639 | SI\_1 | GAIN |
| 3 | 40446754 | 40471392 | 24638 | SI\_11,SI\_2,SI\_12\_R,  SI\_13,SI\_6,SI\_7 | LOSS |
| 3 | 63568510 | 63579364 | 10854 | SI\_13,SI\_10,SI\_14,  SI\_15,SI\_16 | LOSS |
| 3 | 66522713 | 66529906 | 7193 | SI\_6 | GAIN |
| 3 | 73712844 | 73719632 | 6788 | SI\_11 | LOSS |
| 3 | 79572513 | 79583555 | 11042 | SI\_10,SI\_11,SI\_13,  SI\_14,SI\_15,  SI\_16,SI\_2,SI\_3,SI\_4\_R,  SI\_5,SI\_7,SI\_8,SI\_9 | LOSS |
| 3 | 92316897 | 92317634 | 737 | SI\_1 | LOSS |
| 3 | 103364349 | 103366668 | 2319 | SI\_11,SI\_12\_R,SI\_16,  SI\_7,SI\_9 | LOSS |
| 3 | 104851927 | 104866866 | 14939 | SI\_11 | GAIN |
| 4 | 1169607 | 1216538 | 46931 | SI\_11 | GAIN |
| 4 | 9088302 | 9096261 | 7959 | SI\_4\_R | LOSS |
| 4 | 39804638 | 39808060 | 3422 | SI\_11 | GAIN |
| 4 | 39975564 | 39992341 | 16777 | SI\_2 | GAIN |
| 4 | 48309951 | 48341896 | 31945 | SI\_2,SI\_13 | GAIN |
| 4 | 58771139 | 58787472 | 16333 | SI\_11,SI\_2 | GAIN |
| 4 | 63435279 | 63442498 | 7219 | SI\_14,SI\_16 | GAIN |
| 4 | 69976217 | 69979968 | 3751 | SI\_3 | GAIN |
| 4 | 85226873 | 85292322 | 65449 | SI\_6 | GAIN |
| 5 | 3091754 | 3109737 | 17983 | SI\_1 | LOSS |
| 5 | 23910847 | 23918123 | 7276 | SI\_13 | LOSS |
| 5 | 29592886 | 29594502 | 1616 | SI\_7 | LOSS |
| 5 | 40021762 | 40029943 | 8181 | SI\_11 | GAIN |
| 5 | 45658625 | 45665805 | 7180 | SI\_11,SI\_1,SI\_13,SI\_2,  SI\_3,SI\_8 | LOSS |
| 5 | 47420680 | 47433235 | 12555 | SI\_2 | GAIN |
| 5 | 48921509 | 48936803 | 15294 | SI\_1,SI\_10,SI\_11,SI\_12\_R,  SI\_13,  SI\_3,SI\_6,SI\_7,SI\_8,SI\_9 | LOSS |
| 5 | 50151867 | 50159015 | 7148 | SI\_1 | GAIN |
| 5 | 54073626 | 54075872 | 2246 | SI\_16 | GAIN |
| 5 | 54998413 | 55022936 | 24523 | SI\_2 | GAIN |
| 5 | 58790805 | 58795489 | 4684 | SI\_15,SI\_10,SI\_12\_R,SI\_13,  SI\_14,SI\_16,SI\_2,SI\_6,  SI\_7,SI\_8,SI\_9 | LOSS |
| 5 | 59253017 | 59256313 | 3296 | SI\_10,SI\_13,SI\_15,SI\_16,  SI\_2,SI\_6,SI\_8,SI\_12\_R,  SI\_14,SI\_7,SI\_9,SI\_9 | LOSS |
| 6 | 949346 | 963033 | 13687 | SI\_10,SI\_13,SI\_14,SI\_15,SI\_16 | LOSS |
| 6 | 3447947 | 3486942 | 38995 | SI\_13 | GAIN |
| 6 | 4395786 | 4399822 | 4036 | SI\_15 | LOSS |
| 6 | 17141315 | 17144773 | 3458 | SI\_10,SI\_13,SI\_14,SI\_15,  SI\_16,SI\_4\_R,SI\_7 | LOSS |
| 7 | 3990089 | 3996538 | 6449 | SI\_6 | GAIN |
| 7 | 5661560 | 5726624 | 65064 | SI\_5 | GAIN |
| 7 | 24558429 | 24562846 | 4417 | SI\_2 | GAIN |
| 7 | 27756301 | 27769436 | 13135 | SI\_12\_R | GAIN |
| 7 | 34262022 | 34285445 | 23423 | SI\_2 | GAIN |
| 8 | 3426059 | 3430208 | 4149 | SI\_6 | LOSS |
| 8 | 8449020 | 8489515 | 40495 | SI\_2 | GAIN |
| 9 | 3429115 | 3463492 | 34377 | SI\_8 | GAIN |
| 9 | 3694268 | 3704433 | 10165 | SI\_6 | GAIN |
| 9 | 14851112 | 14866888 | 15776 | SI\_11 | GAIN |
| 9 | 17380217 | 17384534 | 4317 | SI\_10,SI\_15,SI\_13,  SI\_14,SI\_16 | LOSS |
| 11 | 1565290 | 1569986 | 4696 | SI\_11 | GAIN |
| 11 | 6355091 | 6362007 | 6916 | SI\_11,SI\_13 | LOSS |
| 11 | 17216551 | 17230323 | 13772 | SI\_13 | GAIN |
| 12 | 1181561 | 1212051 | 30490 | SI\_1 | GAIN |
| 12 | 2422961 | 2425174 | 2213 | SI\_2 | GAIN |
| 14 | 8418295 | 8422378 | 4083 | SI\_11 | GAIN |
| 14 | 14406520 | 14419809 | 13289 | SI\_2 | GAIN |
| 16 | 60835 | 101809 | 40974 | SI\_2 | GAIN |
| 16 | 233569 | 330020 | 96451 | SI\_11,SI\_2,SI\_10,SI\_12\_R,  SI\_13,  SI\_14,SI\_15,SI\_16,SI\_5,SI\_8 | COMPLEX |
| 18 | 537037 | 557577 | 20540 | SI\_11,SI\_2 | GAIN |
| 18 | 699667 | 706189 | 6522 | SI\_11,SI\_2 | LOSS |
| 18 | 735315 | 742868 | 7553 | SI\_11,SI\_2 | LOSS |
| 19 | 3679079 | 3686041 | 6962 | SI\_2 | GAIN |
| 19 | 5028683 | 5033359 | 4676 | SI\_4\_R | GAIN |
| 19 | 7457093 | 7474834 | 17741 | SI\_2 | GAIN |
| 19 | 8159262 | 8165868 | 6606 | SI\_1 | GAIN |
| 20 | 8693844 | 8696998 | 3154 | SI\_11 | GAIN |
| 22 | 3757673 | 3764333 | 6660 | SI\_1,SI\_11,SI\_12\_R,SI\_15,  SI\_4\_R,SI\_5,SI\_8 | LOSS |
| 23 | 2947239 | 2954827 | 7588 | SI\_2 | GAIN |
| 23 | 3710926 | 3726715 | 15789 | SI\_4\_R,SI\_5,SI\_7,SI\_1 | GAIN |
| 25 | 319961 | 329270 | 9309 | SI\_2 | GAIN |
| 25 | 743116 | 744762 | 1646 | SI\_13 | LOSS |
| 25 | 1365792 | 1369882 | 4090 | SI\_2 | GAIN |
| 25 | 1471515 | 1471746 | 231 | SI\_3 | LOSS |
| 26 | 2115014 | 2120628 | 5614 | SI\_8 | GAIN |
| 26 | 2285168 | 2289168 | 4000 | SI\_2 | GAIN |
| 26 | 4585159 | 4610871 | 25712 | SI\_2 | GAIN |
| 28 | 1113623 | 1194121 | 80498 | SI\_2 | GAIN |