## Report on Identified Refactoring Opportunities for SC/ST Refactoring

Each of the identified control-fields represents an SC/ST refactoring opportunity.

## Statistics on Identified Control-Fields:

- 1. No. of Classes (IPC): 1731
- 2. Classes Qualified for Refactoring (QC): 66
- 3. %QC: 3.813%
- 4. No. of Fields in All Classes (IF): 4836
- 5. Indentified Control Fields (CF): 112
- 6. %CF: 2.316%
- 7. No. of Control-Fields for SC Refactoring: 20
- 8. No. of Control-Fields for ST Refactoring: 92
- 9. No. of Control-Fields Associated with More Than 15 Conditional-Statements: 9
- 10. No. of Control-Fields Associated with 11 to 15 Conditional-Statements: 2
- 11. No. of Control-Fields Associated with 6 to 10 Conditional-Statements: 8
- 12. No. of Control-Fields Associated with 2 to 5 Conditional-Statements: 93

Identified Control-Fields. A control-field is denoted as <C, f>, where 'f' is a field of a class with fully-qualified name 'C'. Uses = Number of conditional-statements associated with a control-field.

Uses	Replace Type Code with Subclass (SC)	Uses	Replace Type Code with State (ST)
24	<cck.util.option.bool, value=""></cck.util.option.bool,>	66	<pre><jintgen.isdl.parser.isdlparser,jj_ntk></jintgen.isdl.parser.isdlparser,jj_ntk></pre>
8	<avrora.sim.output.eventgen, enabled=""></avrora.sim.output.eventgen,>	40	<avrora.syntax.atmel.atmelparser,jj_ntk></avrora.syntax.atmel.atmelparser,jj_ntk>
5	<avrora.monitors.interruptmonitor.mon, show=""></avrora.monitors.interruptmonitor.mon,>	35	<pre><jintgen.isdl.parser.isdlparsertokenmanag er,curchar=""></jintgen.isdl.parser.isdlparsertokenmanag></pre>
4	<avrora.monitors.interruptmonitor.mon,< td=""><td>30</td><td><cck.text.verbose.printer, enabled=""></cck.text.verbose.printer,></td></avrora.monitors.interruptmonitor.mon,<>	30	<cck.text.verbose.printer, enabled=""></cck.text.verbose.printer,>
3	invokeOnly> <avrora.sim.mcu.defaultmcu.pin,< td=""><td>23</td><td><avrora.syntax.objdump.objdumpparser,jj_ ntk&gt;</avrora.syntax.objdump.objdumpparser,jj_ </td></avrora.sim.mcu.defaultmcu.pin,<>	23	<avrora.syntax.objdump.objdumpparser,jj_ ntk&gt;</avrora.syntax.objdump.objdumpparser,jj_ 
	outputDir> <avrora.monitors.packetmonitor.mon,< td=""><td>19</td><td><avrora.syntax.objdump.objdumpparserto kenManager,curChar&gt;</avrora.syntax.objdump.objdumpparserto </td></avrora.monitors.packetmonitor.mon,<>	19	<avrora.syntax.objdump.objdumpparserto kenManager,curChar&gt;</avrora.syntax.objdump.objdumpparserto 
	showPackets> <avrora.sim.radio.cc1000radio.serialconfi< td=""><td></td><td><avrora.syntax.atmel.atmelparsertokenma nager,curChar&gt;</avrora.syntax.atmel.atmelparsertokenma </td></avrora.sim.radio.cc1000radio.serialconfi<>		<avrora.syntax.atmel.atmelparsertokenma nager,curChar&gt;</avrora.syntax.atmel.atmelparsertokenma 
	gurationInterface, writeCommand>	17	<avrora.syntax.atmel.atmelparser, ji_la=""></avrora.syntax.atmel.atmelparser,>
	<avrora.monitors.sniffermonitor.mon, showTransmitted&gt;</avrora.monitors.sniffermonitor.mon, 	12	<avrora.test.probes.probeparsertokenmana ger,curChar&gt;</avrora.test.probes.probeparsertokenmana 
	<avrora.monitors.sniffermonitor.mon, showReceived&gt;</avrora.monitors.sniffermonitor.mon, 	11	<avrora.stack.statecache.set, delegating=""></avrora.stack.statecache.set,>
	<pre><avrora.monitors.packetmonitor.mon,< td=""><td>9</td><td><avrora.syntax.objdump.objdumpparserto kenManager,jjmatchedPos&gt;</avrora.syntax.objdump.objdumpparserto </td></avrora.monitors.packetmonitor.mon,<></pre>	9	<avrora.syntax.objdump.objdumpparserto kenManager,jjmatchedPos&gt;</avrora.syntax.objdump.objdumpparserto 
2	<avrora.monitors.sniffermonitor.mon, print=""></avrora.monitors.sniffermonitor.mon,>	8	<avrora.sim.simulation, running=""></avrora.sim.simulation,>
2		7	<cck.text.status, enabled=""></cck.text.status,>
	<avrora.syntax.module.seg, acceptsdata=""></avrora.syntax.module.seg,>	6	<avrora.sim.radio.cc1000radio.mainregist corepd="" er,=""></avrora.sim.radio.cc1000radio.mainregist>
	<avrora.sim.clock.barriersynchronizer.sync hEvent, removed&gt;</avrora.sim.clock.barriersynchronizer.sync 		<avrora.sim.atmelinterpreter, c=""></avrora.sim.atmelinterpreter,>
	<pre><cck.elf.elfdatainputstream, bigendian=""></cck.elf.elfdatainputstream,></pre>		<avrora.sim.util.mem16, state=""></avrora.sim.util.mem16,>
	<avrora.sim.platform.sensors.accelsensor,< td=""><td rowspan="3">5</td><td><avrora.test.probes.probeparser,jj_ntk></avrora.test.probes.probeparser,jj_ntk></td></avrora.sim.platform.sensors.accelsensor,<>	5	<avrora.test.probes.probeparser,jj_ntk></avrora.test.probes.probeparser,jj_ntk>
	on> <avrora.syntax.syntacticoperand.expr,< td=""><td><avrora.sim.radio.cc1000radio.mainregist biaspd="" er,=""></avrora.sim.radio.cc1000radio.mainregist></td></avrora.syntax.syntacticoperand.expr,<>		<avrora.sim.radio.cc1000radio.mainregist biaspd="" er,=""></avrora.sim.radio.cc1000radio.mainregist>
	simplified>		<avrora.arch.avr.avrstate, c=""></avrora.arch.avr.avrstate,>
	<pre><avrora.monitors.calltimemonitor.calltim emon,="" ignore_interrupts=""></avrora.monitors.calltimemonitor.calltim></pre>		<avrora.sim.atmelinterpreter, nextpc=""></avrora.sim.atmelinterpreter,>
	<avrora.sim.util.memprint, log=""></avrora.sim.util.memprint,>		<avrora.sim.radio.medium.txrx, activated&gt;</avrora.sim.radio.medium.txrx, 
	<avrora.stack.statetransitiongraph.edge, type=""></avrora.stack.statetransitiongraph.edge,>		<avrora.sim.mcu.registerset.field,value></avrora.sim.mcu.registerset.field,value>
	<pre><jintgen.isdl.instrdecl, pseudo=""></jintgen.isdl.instrdecl,></pre>		<avrora.syntax.atmel.atmelparsertokenma nager,jjmatchedPos&gt;</avrora.syntax.atmel.atmelparsertokenma 

Uses	Replace Type Code with State (ST)
4	<avrora.sim.radio.cc1000radio.mainregist< th=""></avrora.sim.radio.cc1000radio.mainregist<>
	er, rxtx>
	<avrora.sim.radio.cc1000radio.mainregist er,="" fspd=""></avrora.sim.radio.cc1000radio.mainregist>
	<avrora.arch.msp430.msp430state, z=""></avrora.arch.msp430.msp430state,>
	<pre><jintgen.isdl.parser.isdlparsertokenmanag< pre=""></jintgen.isdl.parser.isdlparsertokenmanag<></pre>
	er, jjmatchedPos>
	<avrora.sim.atmelinterpreter, sleeping=""></avrora.sim.atmelinterpreter,>
	<avrora.arch.msp430.msp430state, c=""></avrora.arch.msp430.msp430state,>
	<avrora.sim.atmelinterpreter, n=""></avrora.sim.atmelinterpreter,>
	<avrora.sim.atmelinterpreter, s=""></avrora.sim.atmelinterpreter,>
	<avrora.sim.atmelinterpreter, h=""></avrora.sim.atmelinterpreter,>
	<avrora.sim.atmelinterpreter, i=""></avrora.sim.atmelinterpreter,>
	<avrora.sim.atmelinterpreter, t=""></avrora.sim.atmelinterpreter,>
	<avrora.sim.atmelinterpreter, v=""></avrora.sim.atmelinterpreter,>
	<avrora.sim.atmelinterpreter, z=""></avrora.sim.atmelinterpreter,>
	<avrora.sim.radio.medium.receiver, locked=""></avrora.sim.radio.medium.receiver,>
	<avrora.arch.msp430.msp430operand,op_t ype=""></avrora.arch.msp430.msp430operand,op_t>
3	<avrora.sim.radio.cc1000radio.mainregist er,="" txpd=""></avrora.sim.radio.cc1000radio.mainregist>
	<avrora.stack.statecache.state, isexplored=""></avrora.stack.statecache.state,>
	<avrora.arch.avr.avrstate, v=""></avrora.arch.avr.avrstate,>
	<avrora.arch.avr.avrstate, s=""></avrora.arch.avr.avrstate,>
	<avrora.arch.avr.avrstate, t=""></avrora.arch.avr.avrstate,>
	<avrora.arch.avr.avrstate, z=""></avrora.arch.avr.avrstate,>
	<avrora.stack.statecache.set, empty=""></avrora.stack.statecache.set,>
	<avrora.arch.avr.avrstate, h=""></avrora.arch.avr.avrstate,>
	<avrora.arch.avr.avrstate, n=""></avrora.arch.avr.avrstate,>
	<avrora.arch.avr.avrstate, i=""></avrora.arch.avr.avrstate,>
	<avrora.sim.util.mem16, count=""></avrora.sim.util.mem16,>
	<avrora.sim.util.mem8, count=""></avrora.sim.util.mem8,>
	<avrora.sim.mcu.eeprom, writeenable=""></avrora.sim.mcu.eeprom,>
	<avrora.sim.finitestatemachine, curstate=""></avrora.sim.finitestatemachine,>
	<avrora.stack.analyzer, trace=""></avrora.stack.analyzer,>
	<pre><jintgen.isdl.parser.isdlparsertokenmanag er,="" jjmatchedkind=""></jintgen.isdl.parser.isdlparsertokenmanag></pre>
	<avrora.sim.platform.externalflash,dfopcod e&gt;</avrora.sim.platform.externalflash,dfopcod 
	<avrora.arch.avr.avroperand,op_type></avrora.arch.avr.avroperand,op_type>
	<avrora.sim.radio.cc2420radio.receiver,st ate=""></avrora.sim.radio.cc2420radio.receiver,st>

Uses	Replace Type Code with State (ST)
2	<avrora.sim.mcu.atmegatimer, countup=""></avrora.sim.mcu.atmegatimer,>
2	<avrora.syntax.module, casesensitivity=""></avrora.syntax.module,>
	<avrora.syntax.wodute, easesensitivity=""></avrora.syntax.wodute,>
	bufferPos>
	<avrora.sim.radio.cc1000radio.mainregist er,="" rxpd=""></avrora.sim.radio.cc1000radio.mainregist>
	<avrora.sim.mcu.timer8bit, period=""></avrora.sim.mcu.timer8bit,>
	<cck.text.printer, first=""></cck.text.printer,>
	<avrora.sim.radio.cc2420radio, configRAMBank&gt;</avrora.sim.radio.cc2420radio, 
	<pre><jintgen.gen.disassembler.decoder,< th=""></jintgen.gen.disassembler.decoder,<></pre>
	<pre><avrora.stack.isea.iseabstractstate.element ,="" read=""></avrora.stack.isea.iseabstractstate.element></pre>
	<pre><jintgen.isdl.operandtypedecl.accessor,< th=""></jintgen.isdl.operandtypedecl.accessor,<></pre>
	<avrora.sim.util.memtimer, timer_state=""></avrora.sim.util.memtimer,>
	$<\!\!avrora.stack.State Cache.State, on Frontier\!\!>$
	<pre><cck.parser.abstractparseexception, specialconstructor=""></cck.parser.abstractparseexception,></pre>
	<avrora.sim.mcu.spi.spcrreg, prev_spie=""></avrora.sim.mcu.spi.spcrreg,>
	<cck.text.terminal, htmlcolors=""></cck.text.terminal,>
	<avrora.monitors.tracemonitor.mon, nesting=""></avrora.monitors.tracemonitor.mon,>
	<cck.util.util.error, stacktraces=""></cck.util.util.error,>
	<avrora.sim.energy.energycontrol, active=""></avrora.sim.energy.energycontrol,>
	<pre><jintgen.gen.disassembler.decoder,< th=""></jintgen.gen.disassembler.decoder,<></pre>
	<avrora.sim.radio.cc1000radio.spiticker, activated=""></avrora.sim.radio.cc1000radio.spiticker,>
	<cck.text.printer, begline=""></cck.text.printer,>
	<avrora.sim.mcu.atmegatimer, timerEnabled&gt;</avrora.sim.mcu.atmegatimer, 
	<avrora.sim.mcu.adc.controlregister, converting=""></avrora.sim.mcu.adc.controlregister,>
	<avrora.sim.mcu.spi.transferevent, transmitting&gt;</avrora.sim.mcu.spi.transferevent, 
	<cck.text.status, timing=""></cck.text.status,>
	<avrora.gui.graphevents.myvector, current=""></avrora.gui.graphevents.myvector,>
	<cck.test.testengine, verbose=""></cck.test.testengine,>
	<cck.stat.minmaxmean, somedata=""></cck.stat.minmaxmean,>
	<cck.text.terminal, usecolors=""></cck.text.terminal,>
	<avrora.sim.platform.externalflash, isreading=""></avrora.sim.platform.externalflash,>
	<avrora.syntax.atmel.atmelparsertokenma nager, jjmatchedKind&gt;</avrora.syntax.atmel.atmelparsertokenma 
	<avrora.syntax.objdump.objdumpparserto kenManager, jjmatchedKind&gt;</avrora.syntax.objdump.objdumpparserto 
	<avrora.test.probes.probeparsertokenmana ger, jjmatchedKind&gt;</avrora.test.probes.probeparsertokenmana 
	<avrora.sim.platform.externalflash, isselected=""></avrora.sim.platform.externalflash,>

Uses	Replace Type Code with State (ST)
	<avrora.sim.radio.cc2420radio,configcom< th=""></avrora.sim.radio.cc2420radio,configcom<>
	mand>

Back To Top