





Registers

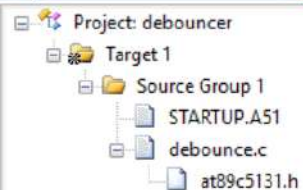
Register	Value
Regs	
r0	0x00
r1	0x00
r2	0x01
r3	0x7e
r4	0x07
r5	0xd0
r6	0x07
r7	0xd0
Sys	
a	0x00
b	0x00
sp	0x07
sp_max	0x13
PC	0x0000
auxr1	0x00
dp1r	0x0000
states	0
sec	0.000000
psw	0x00

```

debounce.c  STARTUP.A51
61 // S2 OFF
62 if (sw2 && !sw2Prev) {
63     msdelay(debounce);
64     if (sw2 == 1) {
65         LED1 = 0;
66         LED2 = 1;
67         LED3 = 0;
68         LED4 = 0;
69         sw2Prev = 1;
70     }
71 }
72 // S2 ON to OFF
73 else if (!sw2 && sw2Prev) {
74     msdelay(debounce);
75     if (sw2 == 0) {
76         LED1 = 1;
77         LED2 = 1;
78         LED3 = 1;
79         LED4 = 1;
80         msdelay(allOn);
81         LED1 = 0;
82         LED2 = 0;
83         LED3 = 0;
84         LED4 = 0;
85         sw2Prev = 0;
86     }
87 }
88 // S3 OFF to ON
89 if (sw3 && !sw3Prev) {
90     msdelay(debounce);
91     if (sw3 == 1) {
92         LED1 = 0;
93         LED2 = 1;
94         LED3 = 1;
95         LED4 = 1;
96     }
97 }
98 // S3 ON to OFF
99 else if (!sw3 && sw3Prev) {
100     msdelay(debounce);
101     if (sw3 == 0) {
102         LED1 = 1;
103         LED2 = 1;
104         LED3 = 1;
105         LED4 = 1;
106         msdelay(allOn);
107         LED1 = 0;
108         LED2 = 0;
109         LED3 = 0;
110         LED4 = 0;
111         sw3Prev = 0;
112     }
113 }
114 }
115
116 // S3 ON to OFF
117 else if (!sw3 && sw3Prev) {
118     msdelay(debounce);
119     if (sw3 == 0) {
120         LED1 = 1;
121         LED2 = 1;
122         LED3 = 1;
123         LED4 = 1;
124         msdelay(allOn);
125         LED1 = 0;
126         LED2 = 0;
127         LED3 = 0;
128         LED4 = 0;
129         sw3Prev = 0;
130     }
131 }
132 }
133
134 // S3 OFF to ON
135 if (sw3 && !sw3Prev) {
136     msdelay(debounce);
137     if (sw3 == 1) {
138         LED1 = 0;
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140         LED3 = 1;
141         LED4 = 1;
142     }
143 }
144 // S3 ON to OFF
145 else if (!sw3 && sw3Prev) {
146     msdelay(debounce);
147     if (sw3 == 0) {
148         LED1 = 1;
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150         LED3 = 1;
151         LED4 = 1;
152         msdelay(allOn);
153         LED1 = 0;
154         LED2 = 0;
155         LED3 = 0;
156         LED4 = 0;
157         sw3Prev = 0;
158     }
159 }
160 }
161
162 // S3 ON to OFF
163 else if (!sw3 && sw3Prev) {
164     msdelay(debounce);
165     if (sw3 == 0) {
166         LED1 = 1;
167         LED2 = 1;
168         LED3 = 1;
169         LED4 = 1;
170         msdelay(allOn);
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172         LED2 = 0;
173         LED3 = 0;
174         LED4 = 0;
175         sw3Prev = 0;
176     }
177 }
178 }
179
180 // S3 OFF to ON
181 if (sw3 && !sw3Prev) {
182     msdelay(debounce);
183     if (sw3 == 1) {
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189 }
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191 else if (!sw3 && sw3Prev) {
192     msdelay(debounce);
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197         LED4 = 1;
198         msdelay(allOn);
199         LED1 = 0;
200         LED2 = 0;
201         LED3 = 0;
202         LED4 = 0;
203         sw3Prev = 0;
204     }
205 }
206 }
207
208 // S3 ON to OFF
209 else if (!sw3 && sw3Prev) {
210     msdelay(debounce);
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216         msdelay(allOn);
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218         LED2 = 0;
219         LED3 = 0;
220         LED4 = 0;
221         sw3Prev = 0;
222     }
223 }
224 }
225
226 // S3 OFF to ON
227 if (sw3 && !sw3Prev) {
228     msdelay(debounce);
229     if (sw3 == 1) {
230         LED1 = 0;
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244         msdelay(allOn);
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246         LED2 = 0;
247         LED3 = 0;
248         LED4 = 0;
249         sw3Prev = 0;
250     }
251 }
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254 // S3 ON to OFF
255 else if (!sw3 && sw3Prev) {
256     msdelay(debounce);
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265         LED3 = 0;
266         LED4 = 0;
267         sw3Prev = 0;
268     }
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272 // S3 OFF to ON
273 if (sw3 && !sw3Prev) {
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290         msdelay(allOn);
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293         LED3 = 0;
294         LED4 = 0;
295         sw3Prev = 0;
296     }
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300 // S3 ON to OFF
301 else if (!sw3 && sw3Prev) {
302     msdelay(debounce);
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308         msdelay(allOn);
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312         LED4 = 0;
313         sw3Prev = 0;
314     }
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318 // S3 OFF to ON
319 if (sw3 && !sw3Prev) {
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324         LED3 = 1;
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326     }
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329 else if (!sw3 && sw3Prev) {
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339         LED3 = 0;
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341         sw3Prev = 0;
342     }
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346 // S3 ON to OFF
347 else if (!sw3 && sw3Prev) {
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359         sw3Prev = 0;
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386         LED4 = 0;
387         sw3Prev = 0;
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404         LED4 = 0;
405         sw3Prev = 0;
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410 // S3 OFF to ON
411 if (sw3 && !sw3Prev) {
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416         LED3 = 1;
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421 else if (!sw3 && sw3Prev) {
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428         msdelay(allOn);
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430         LED2 = 0;
431         LED3 = 0;
432         LED4 = 0;
433         sw3Prev = 0;
434     }
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438 // S3 ON to OFF
439 else if (!sw3 && sw3Prev) {
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446         msdelay(allOn);
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448         LED2 = 0;
449         LED3 = 0;
450         LED4 = 0;
451         sw3Prev = 0;
452     }
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456 // S3 OFF to ON
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474         msdelay(allOn);
475         LED1 = 0;
476         LED2 = 0;
477         LED3 = 0;
478         LED4 = 0;
479         sw3Prev = 0;
480     }
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491         LED4 = 1;
492         msdelay(allOn);
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494         LED2 = 0;
495         LED3 = 0;
496         LED4 = 0;
497         sw3Prev = 0;
498     }
499 }
500 }
501
502 // S3 OFF to ON
503 if (sw3 && !sw3Prev) {
504     msdelay(debounce);
505     if (sw3 == 1) {
506         LED1 = 0;
507         LED2 = 1;
508         LED3 = 1;
509         LED4 = 1;
510     }
511 }
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513 else if (!sw3 && sw3Prev) {
514     msdelay(debounce);
515     if (sw3 == 0) {
516         LED1 = 1;
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518         LED3 = 1;
519         LED4 = 1;
520         msdelay(allOn);
521         LED1 = 0;
522         LED2 = 0;
523         LED3 = 0;
524         LED4 = 0;
525         sw3Prev = 0;
526     }
527 }
528 }
529
530 // S3 ON to OFF
531 else if (!sw3 && sw3Prev) {
532     msdelay(debounce);
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534         LED1 = 1;
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536         LED3 = 1;
537         LED4 = 1;
538         msdelay(allOn);
539         LED1 = 0;
540         LED2 = 0;
541         LED3 = 0;
542         LED4 = 0;
543         sw3Prev = 0;
544     }
545 }
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549 if (sw3 && !sw3Prev) {
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555         LED4 = 1;
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565         LED4 = 1;
566         msdelay(allOn);
567         LED1 = 0;
568         LED2 = 0;
569         LED3 = 0;
570         LED4 = 0;
571         sw3Prev = 0;
572     }
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577 else if (!sw3 && sw3Prev) {
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587         LED3 = 0;
588         LED4 = 0;
589         sw3Prev = 0;
590     }
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596     msdelay(debounce);
597     if (sw3 == 1) {
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600         LED3 = 1;
601         LED4 = 1;
602     }
603 }
604 // S3 ON to OFF
605 else if (!sw3 && sw3Prev) {
606     msdelay(debounce);
607     if (sw3 == 0) {
608         LED1 = 1;
609         LED2 = 1;
610         LED3 = 1;
611         LED4 = 1;
612         msdelay(allOn);
613         LED1 = 0;
614         LED2 = 0;
615         LED3 = 0;
616         LED4 = 0;
617         sw3Prev = 0;
618     }
619 }
620 }
621
622 // S3 ON to OFF
623 else if (!sw3 && sw3Prev) {
624     msdelay(debounce);
625     if (sw3 == 0) {
626         LED1 = 1;
627         LED2 = 1;
628         LED3 = 1;
629         LED4 = 1;
630         msdelay(allOn);
631         LED1 = 0;
632         LED2 = 0;
633         LED3 = 0;
634         LED4 = 0;
635         sw3Prev = 0;
636     }
637 }
638 }
639
640 // S3 OFF to ON
641 if (sw3 && !sw3Prev) {
642     msdelay(debounce);
643     if (sw3 == 1) {
644         LED1 = 0;
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646         LED3 = 1;
647         LED4 = 1;
648     }
649 }
650 // S3 ON to OFF
651 else if (!sw3 && sw3Prev) {
652     msdelay(debounce);
653     if (sw3 == 0) {
654         LED1 = 1;
655         LED2 = 1;
656         LED3 = 1;
657         LED4 = 1;
658         msdelay(allOn);
659         LED1 = 0;
660         LED2 = 0;
661         LED3 = 0;
662         LED4 = 0;
663         sw3Prev = 0;
664     }
665 }
666 }
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668 // S3 ON to OFF
669 else if (!sw3 && sw3Prev) {
670     msdelay(debounce);
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680         LED4 = 0;
681         sw3Prev = 0;
682     }
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686 // S3 OFF to ON
687 if (sw3 && !sw3Prev) {
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690         LED1 = 0;
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692         LED3 = 1;
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694     }
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696 // S3 ON to OFF
697 else if (!sw3 && sw3Prev) {
698     msdelay(debounce);
699     if (sw3 == 0) {
700         LED1 = 1;
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704         msdelay(allOn);
705         LED1 = 0;
706         LED2 = 0;
707         LED3 = 0;
708         LED4 = 0;
709         sw3Prev = 0;
710     }
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712 }
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714 // S3 ON to OFF
715 else if (!sw3 && sw3Prev) {
716     msdelay(debounce);
717     if (sw3 == 0) {
718         LED1 = 1;
719         LED2 = 1;
720         LED3 = 1;
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723         LED1 = 0;
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726         LED4 = 0;
727         sw3Prev = 0;
728     }
729 }
730 }
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732 // S3 OFF to ON
733 if (sw3 && !sw3Prev) {
734     msdelay(debounce);
735     if (sw3 == 1) {
736         LED1 = 0;
737         LED2 = 1;
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739         LED4 = 1;
740     }
741 }
742 // S3 ON to OFF
743 else if (!sw3 && sw3Prev) {
744     msdelay(debounce);
745     if (sw3 == 0) {
746         LED1 = 1;
747         LED2 = 1;
748         LED3 = 1;
749         LED4 = 1;
750         msdelay(allOn);
751         LED1 = 0;
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754         LED4 = 0;
755         sw3Prev = 0;
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761 else if (!sw3 && sw3Prev) {
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824 // S3 OFF to ON
825 if (sw3 && !sw3Prev) {
826     msdelay(debounce);
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828         LED1 = 0;
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834 // S3 ON to OFF
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892         LED4 = 0;
893         sw3Prev = 0;
894     }
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898 // S3 ON to OFF
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926 // S3 ON to OFF
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962 // S3 OFF to ON
963 if (sw3 && !sw3Prev) {
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965     if (sw3 == 1) {
966         LED1 = 0;
967         LED2 = 1;
968         LED3 = 1;
969         LED4 = 1;
970     }
971 }
972 // S3 ON to OFF
973 else if (!sw3 && sw3Prev) {
974     msdelay(debounce);
975     if (sw3 == 0) {
976         LED1 = 1;
977         LED2 = 1;
978         LED3 = 1;
979         LED4 = 1;
980         msdelay(allOn);
981         LED1 = 0;
982         LED2 = 0;
983         LED3 = 0;
984         LED4 = 0;
985         sw3Prev = 0;
986     }
987 }
988 }
989
990 // S3 ON to OFF
991 else if (!sw3 && sw3Prev) {
992     msdelay(debounce);
993     if (sw3 == 0) {
994         LED1 = 1;
995         LED2 = 1;
996         LED3 = 1;
997         LED4 = 1;
998         msdelay(allOn);
999         LED1 = 0;
1000         LED2 = 0;
1001         LED3 = 0;
1002         LED4 = 0;
1003         sw3Prev = 0;
1004     }
1005 }
1006 }
1007
1008 // S3 OFF to ON
1009 if (sw3 && !sw3Prev) {
1010     msdelay(debounce);
1011     if (sw3 == 1) {
1012         LED1 = 0;
1013         LED2 = 1;
1014         LED3 = 1;
1015         LED4 = 1;
1016     }
1017 }
1018 // S3 ON to OFF
1019 else if (!sw3 && sw3Prev) {
1020     msdelay(debounce);
1021     if (sw3 == 0) {
1022         LED1 = 1;
1023         LED2 = 1;
1024         LED3 = 1;
1025         LED4 = 1;
1026         msdelay(allOn);
1027         LED1 = 0;
1028         LED2 = 0;
1029         LED3 = 0;
1030         LED4 = 0;
1031         sw3Prev = 0;
1032     }
1033 }
1034 }
1035
1036 // S3 ON to OFF
1037 else if (!sw3 && sw3Prev) {
1038     msdelay(debounce);
1039     if (sw3 == 0) {
1040         LED1 = 1;
1041         LED2 = 1;
1042         LED3 = 1;
1043         LED4 = 1;
1044         msdelay(allOn);
1045         LED1 = 0;
1046         LED2 = 0;
1047         LED3 = 0;
1048         LED4 = 0;
1049         sw3Prev = 0;
1050     }
1051 }
1052 }
1053
1054 // S3 OFF to ON
1055 if (sw3 && !sw3Prev) {
1056     msdelay(debounce);
1057     if (sw3 == 1) {
1058         LED1 = 0;
1059         LED2 = 1;
1060         LED3 = 1;
1061         LED4 = 1;
1062     }
1063 }
1064 // S3 ON to OFF
1065 else if (!sw3 && sw3Prev) {
1066     msdelay(debounce);
1067     if (sw3 == 0) {
1068         LED1 = 1;
1069         LED2 = 1;
1070         LED3 = 1;
1071         LED4 = 1;
1072         msdelay(allOn);
1073         LED1 = 0;
1074         LED2 = 0;
1075         LED3 = 0;
1076         LED4 = 0;
1077         sw3Prev = 0;
1078     }
1079 }
1080 }
1081
1082 // S3 ON to OFF
1083 else if (!sw3 && sw3Prev) {
1084     msdelay(debounce);
1085     if (sw3 == 0) {
1086         LED1 = 1;
1087         LED2 = 1;
1088         LED3 = 1;
1089         LED4 = 1;
1090         msdelay(allOn);
1091         LED1 = 0;
1092         LED2 = 0;
1093         LED3 = 0;
1094         LED4 = 0;
1095         sw3Prev = 0;
1096     }
1097 }
1098 }
1099
1100 // S3 OFF to ON
1101 if (sw3 && !sw3Prev) {
1102     msdelay(debounce);
1103     if (sw3 == 1) {
1104         LED1 = 0;
1105         LED2 = 1;
1106         LED3 = 1;
1107         LED4 = 1;
1108     }
1109 }
1110 // S3 ON to OFF
1111 else if (!sw3 && sw3Prev) {
1112     msdelay(debounce);
1113     if (sw3 == 0) {
1114         LED1 = 1;
1115         LED2 = 1;
1116         LED3 = 1;
1117         LED4 = 1;
1118         msdelay(allOn);
1119         LED1 = 0;
1120         LED2 = 0;
1121         LED3 = 0;
1122         LED4 = 0;
1123         sw3Prev = 0;
1124     }
1125 }
1126 }
1127
1128 // S3 ON to OFF
1129 else if (!sw3 && sw3Prev) {
1130     msdelay(debounce);
1131     if (sw3 == 0) {
1132         LED1 = 1;
1133         LED2 = 1;
1134         LED3 = 1;
1135         LED4 = 1;
1136         msdelay(allOn);
1137         LED1 = 0;
1138         LED2 = 0;
1139         LED3 = 0;
1140         LED4 = 0;
1141         sw3Prev = 0;
1142     }
1143 }
1144 }
1145
1146 // S3 OFF to ON
1147 if (sw3 && !sw3Prev) {
1148     msdelay(debounce);
1149     if (sw3 == 1) {
1150         LED1 = 0;
1151         LED2 = 1;
1152         LED3 = 1;
1153         LED4 = 1;
1154     }
1155 }
1156 // S3 ON to OFF
1157 else if (!sw3 && sw3Prev) {
1158     msdelay(debounce);
1159     if (sw3 == 0) {
1160         LED1 = 1;
1161         LED2 = 1;
1162         LED3 = 1;
1163         LED4 = 1;
1164         msdelay(allOn);
1165         LED1 = 0;
1166         LED2 = 0;
1167         LED3 = 0;
1168         LED4 = 0;
1169         sw3Prev = 0;
1170     }
1171 }
1172 }
1173
1174 // S3 ON to OFF
1175 else if (!sw3 && sw3Prev) {
1176     msdelay(debounce);
1
```



Project



debounce.c

```
1 #include <at89c5131.h>
2 // Add other port bits
3 sbit LED1 = P1^4;
4 sbit LED2 = P1^5;
5 sbit LED3 = P1^6;
6 sbit LED4 = P1^7;
7 sbit sw1 = P1^0;
8 sbit sw2 = P1^1;
9 sbit sw3 = P1^2;
10 sbit sw4 = P1^3;
11 // You can write your functions here
12 void msdelay(unsigned int time){
13     int i,j;
14     for(i=0;i<time;i++){
15         for(j=0;j<382;j++);
16     }
17 }
18 void main(){
19     /*
20     Add your code here
21     */
22     // debounce delay
23     unsigned int debounce = 2000;
24     unsigned int allOn = 1000;
25
26     unsigned int sw1Prev = 0, sw2Prev = 0, sw3Prev = 0, sw4Prev = 0;
27     while(1){
```

Build Output

```
Rebuild started: Project: debouncer
Rebuild target 'Target 1'
assembling STARTUP.A51...
compiling debounce.c...
linking...
Program Size: data=19.0 xdata=0 code=389
creating hex file from ".\Objects\debouncer"...
".\Objects\debouncer" - 0 Error(s), 0 Warning(s).
Build Time Elapsed: 00:00:00
```