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#include <stdio.h>
```

```
#include <stdint.h>
```

```
#define R 12    // number of rounds
```

```
void rc5_encrypt(uint32_t *A, uint32_t *B, uint32_t *S) {  
    int i;  
    *A += S[0];  
    *B += S[1];  
    for (i = 1; i <= R; i++) {  
        *A = ((*A ^ *B) << (*B & 31)) + S[2*i];  
        *B = ((*B ^ *A) << (*A & 31)) + S[2*i + 1];  
    }  
}
```

```
int main() {  
    uint32_t A = 0x12345678, B = 0x9ABCDEF0;  
    uint32_t S[2*(R+1)] = {  
        0xB7E15163, 0x5618CB1C, 0xF45044D5, 0x9287BE8E,  
        0x30BF3847, 0xCEF6B200, 0x6D2E2BB9, 0x0B65A572,  
        0xA99D1F2B, 0x47D498E4, 0xE60C129D, 0x84438C56,  
        0x227B060F, 0xC0B27FC8, 0x5EE9F981, 0xFD21733A,  
        0x9B58ECF3, 0x399066AC, 0xD7C7E065, 0x75FF5A1E,  
        0x1436D3D7, 0xB26E4D90, 0x50A5C749, 0xEEDD4112,  
        0x8D14BACB, 0x2B4C3494  
    };  
};
```

```
printf("Plaintext: %08X %08X\n", A, B);  
rc5_encrypt(&A, &B, S);  
printf("Ciphertext: %08X %08X\n", A, B);  
  
return 0;  
}
```

Plaintext: 12345678 9ABCDEF0

Ciphertext: 5E80BACB BD9AFC94

=== Code Execution Successful ===