S il r r uid

1 I trod ctfo

il.il About SD

SDICC l n , n t n tt bl , o tlmdzln AN I-C comm ll n b **S** n ee **Dlntfi** d l n d fon 8 blt lcno noc on . Th cumm nt n lon t n t Int l C 5l b d lcno noc on (805l,8052, tc , Zllo Z80 b d CU , nd th

ch n dln cton , nun commm nd nd o on. Th ch n dln cton commm nd l " ", th mo commm nd l "mv". To nlnt th cumn nt onlkln dln cton , t " w ". To mm lk dln cton , u "m r".

Th n n omm b lc dl n nc b t n Unl nd lndo fil t mm ou hould und n t nd. h n ou t ln dln cton th , Unl nd th C - ln b h nomm t u fon nd l h ' ' b t n dln ctonl hll lndo tn dltlon ll u 'l' b clk nd l h . o h n ou onlk t th C ln b h nomm t, ou lll n d to u th fon nd ' ' l h . Unl do not h conc t of dnl l tt n , uch "cı", ln t d ll fil t mm tt ch nd n dln ctonl .

.5. nnning SDICC N fi e Co ile Exe nfi ble

If ou u th n -comm ll d bln nl , th ln t ll dln ctonl fon th llbn nl nd

Th comm nd ./ ure – re =/usr/l l ll confi u th com ll n to

b ln t

2.8

CC
Th
u
mb

Not h th t

– fi k- fier- fi Thl o tlon llll c u th t ck to b loc t d ln th lnt n l
n m ft n th d t m nt.

– fi -lo

3. . O fi i fion O fion

–nog e ill not do lob l ub n lon llmuln tlon, thl o tlon m b
u d h n th com ll n cn t und ln bl l n t ck d t c

– n loo lll ca t dum of lCod ' , ft n loo o tlmlz tlon , lnto fil

3.3.5 fir / bif

th bt nd, *sfr / s i* nfi both d t -t nd(oth - lo cl , th

All unqu lifi d oint n n tn t d 3-b t (-b t fon th d 3 0 *gnnric* oint n . Th t of oint n c n l o to b lictl d cl n d.

3. Int rrupt S rvic outin

CC llo Int rru t n tc noutIn to b cod d In C, ith om t nd d k ond .

```
void imer_isr (void  iner erru i   using 1
{
..
```

Th numb n follo In th *in rru* k ond f th Int rru t numb n thI nou-tIn III n tc . Th com II n III In nt c ll to thI noutIn In th Int rru t cton t bl for th Int rru t numb n clfi d. Th *using*

I *using* ntlcul n b nk occun hll noc ln lo - nlonlt I *using*

Th o th oth , . b d fin CANNOT

_f 2uint.c - con nt flo tin oint to un i n d int
_f 2int.c - con nt flo tin oint to i n d int
_f 2ulon .c - con nt flo tin oint to un i n d lon
_f 2lon .c - con nt flo tin oint to i n d lon
_uch n2f .c - con nt un i n d ch n to flo tin oint
_ch n2f .c - con nt ch n to flo tin oint numb n
_uint2f .c - con nt un i n d int to flo tin oint
_int2f .c - con nt int to flo tin oint numb n

4.ī1.3 Co y- ro g ſion

```
ini f(  {
ini i, j;
i = 0;
j = i;
rei urn j;
```

```
 ll b ch n d to
```

```
ini f(  {
ini i,j;
i = 0;
j = 0;
rei urn 0;
```

Not ı th d d ton cn t d b thſ co no tion ll b lmln t d b d d-cod lmln tion.

4.ī1.4 loo O ſi i ſion

T o t of loo o tlmlz tion n don b CC loo ln nſ nt lftln nd tn n th n duction of loo lnduction nſ bl . In ddltion to th tn n th n duction th o tlmlz n m nk th lnduction nſ bl nd th n ſ t n lloc ton tnſ to k th lnduction nſ bl ln n ſ t n fon th dun tion of th loo . c u of thſ n f n nc of th n ſ t n lloc ton, loo lnduction o tlmlz tion c u n f0nc u c u o3n n fo-3

A m ntlon d n lou l om loo ln nl nt n not n nt, ll t tlc

```
mov a, i
swa  a
anl a,#0x0f
mov i,a
```

Th bo nul ll ch n th fol lo ln mbl qu nc ı

```
mov rl,a
mov a,rl
```

to

```
mov rl,a
```

Not ı All occum nc of

h h t bl cont tn n th l bl bndn d n m t n . If ou

tol, tol.

tmin .h - cont in th follo in function .

```
add a,#0xfd
mov r0,a
add a,#0xfc
mov r1,a
mov a, r0
add a,r
mov d l,a
mov d  ,#0x00
mov s , b
 o  b
rei
```

Th com lln nd lnklin noc dun n mu ln th mu , ho dTf0 th

It ould ub t nt ll n duc th cod n n t d (futun n lon of th com ll n lll b mu nt nou h to d t ct uch o tlmlz tlon o untunltl .

5.il ot on lN S5il m mony l yout

Th 805l f mll of mlcno contnoll n h mlnlmum of l28 b t of lnt nn l m mon hlch l tnuctun d follo

- t 00-l - 32 b t to hold u to b nk of th n l t n 7 to 7
- t 20-2 - l b t to hold l28 blt ml bl nd
- t 30-7 - 0 b t fon n n l un o u .

Conclu ion.

If ou find th t th t ck i o n nittin oun bit ni bl on "n n d t " th n th no ch hich b t utili d th int rn l mu mon i to o ition th "n n d t " ft r th l t b nk of u d n i t n on, if ou u bit ni bl , ft r th l t bit ni bl b u in th –d t -loc, . . if t o n i t n b nk n b in u d nd no bit ni bl , –d t -loc l , nd u th – t ck- ft r-d t o tion.

If bit ni bl n b in u d, noth r mu thod ould b to tu nd qu z th d t n in th unu d n i t n b nk if it ill fit, nd t mt th t ck ft r th l t bit ni bl .

targ ttl g for oth r M Us.

Th i u for n t n ttin th comm ll n n f r too num nou to b co n d b thi docum nt. h t follo i bui f d cui tion of ch of th n h of th comm ll n nd it CU d nd nc .

2 n in th ounc nd buildin th n n tu . Thi h i l n l CU ind nd nt (c t for th l n u t n ion . nt & mu ntic ch ck n l o don in thi lon ith om ini ti l o timiz tion ill b ck tchin l b l nd th tt rn mu tchin o ti- miz tion ill bit-n-3 tion tc.

Th cond h in ol n n tin n int rnu di t cod hich c n b mu ni ul t d duin th l t n h . Thi h i ntin l CU in- d nd nt.Th int rnu di t cod n n tion uu th t n t mu chin h Thunlimodtnd ou(ub -53f comi tl nçomudlkdnri n t bth fiffh th lommnd (d. -1-3(Th 3(-282(In -2 cI8(-3208(

controll d b th d bu n. h n comm nd u d fo th d bu n, t
t n t t nto no t comm nd fo th mul t d t.3 bt tn

.5.9 r n n

t nt d bu d no n nn.

.5.i10 fy e ri ble

Pnlnt t lnfonnn tlon of th nl bl .

.5.ilil rinfi ri ble

nlnt lu of nl bl .

.5.il file filen e

o b o d d d n c h Em c unnin , t th n ron nt b 'E AC OA AT ' to th n t t on b n d ct on (<n t d > b n , th n nt th follo n comm nd E C- o d-fi dcdb c. To t t th nt f c nt th follo n comm nd:

ESC- s bsr

ou o t d to nt th fi n to b d bu d.

Th comm nd n o t on th t d to th mu to d ct bound to d f ult u n th fi dcdb c. . Th b t d b o , th u b ch n d qu d.

7 dcdb -b nt th C 33 ( ) T 5 . 2 .888 -2 . 7Td[( ]TJ 5 . 3Tf . 20f-33 nc

```
for daa a
;;                                                  buffer oin
;; g                sdcdbsrc-goo-sdcdb           Goo  e S C  ou u
buffer
;;                  sdcdbsrc-mode                Toggles Sdcdbsrc mode
(urns i off
;;
;; C-c C-f          sdcdb-finis -from-src        S C  finis  command

;;
;; C-x SPC          sdcdb-break                  Se break for line
wi  oin
;; ESC             sdcdbsrc-mode                Toggle Sdcdbsrc mode

;; ESC m            sdcdbsrc-srcmode             Toggle lis mode
;;
```

Ot r Proc ssors

8. h 80 nd b 80 pont

CC c n t n t both th Zlo Z80 nd th Nnt ndo G m bo ' Z80-l bz80. Th ont l ncom l t - lon u ont l ncom l t (mul, d nd mod n unm lm nt d , nd both flo t nd bltfi ld u ont l ml n . A nt fnom th t th cod n n t d l com ct.

.il po tin u