ACTRANS

AC29LV400B *44PS	AC29LV400B *48TS	AC29LV400T *44PS	AC29LV400T *48TS

ALi

M6759	M6759 *44	M6759 *44Q	M8720

Alliance

AS29F040	AS29LV800B *44PS	AS29LV800B *48TS	AS29LV800T *44PS
AS29LV800T *48TS			

Altera

EP1210	EP1800 @68	EP1810 @68	EP1830 @68
EP220	EP22V10	EP22V10E	EP310
EP312	EP320	EP324	EP324 *44
EP330	EP600	EP610	EP630
EP900	EP900 *44	EP910	EP910 *44
EP910-T	EP910-T *44	EPC1	EPC1 *20
EPC1064	EPC1064 *20	EPC1064V	EPC1064V *20
EPC1213	EPC1213 *20	EPC1441	EPC1441 *20
EPC1441 as 1213	EPC1441 as 1213 *20	EPC2 *20	EPC2 *32TQ
EPM3032A *44	EPM3064A *44	EPM5016	EPM5128 @68
EPM5128A @68	EPM5192 @84	EPM5192(New) @84	EPM7032 *44
EPM7032AE *44	EPM7032AEas7032 *44	EPM7032AEas7032S *44	EPM7032S *44
EPM7032S as 7032 *44	EPM7032V *44	EPM7064 *44	EPM7064 @100
EPM7064 @68	EPM7064 @84	EPM7064AE *44	EPM7064AEas7064 *44
EPM7064S *44	EPM7064S @68	EPM7064S @84	EPM7064S as 7064 *44
EPM7064S as 7064 @68	EPM7064S as 7064 @84	EPM7096 @100	EPM7096 @68
EPM7096 @84	EPM7128 @84	EPM7128A @84	EPM7128AE *84
EPM7128AEas7128 *84	EPM7128AEas7128E *84	EPM7128AEas7128S *84	EPM7128E @100
EPM7128E @84	EPM7128S @100	EPM7128S @84	EPM7128S as 7128 @100
EPM7128S as 7128 @84	EPM7128S as 7128E@100	EPM7128S as 7128E@84	EPM7160E @100
EPM7160E @84	EPM7160S @84	EPM7160S as 7160 @84	EPM7160S as 7160E@100
EPM7160S as 7160E@84	EPS464 *44	EPX740 *44	EPX740 @68
EPX780 @84			

AMD

Am1736	Am1765	Am27128	Am27128A
Am2732	Am27512	Am2764	Am2764A
Am27C010	Am27C020	Am27C040	Am27C100
Am27C1024	Am27C1024 *44	Am27C128	Am27C2048
Am27C2048 *44	Am27C256	Am27C400	Am27C400 *44
Am27C4096	Am27C4096 *44	Am27C512	Am27C64
Am27H010	Am27H256	Am27HB010	Am27LS18
Am27LS19	Am27LS191A	Am27PS181/A	Am27PS191
Am27PS191A	Am27PS291	Am27S12	Am27S12A
Am27S13	Am27S13A	Am27S18/A	Am27S180/A
Am27S181/A	Am27S19/A	Am27S190/A	Am27S191/A
Am27S191SA	Am27S19SA	Am27S20	Am27S21
Am27S28/A	Am27S29/A	Am27S290/A	Am27S291/A
Am27S291SA	Am27S31/A	Am27S43/A	Am27S45/A/SA
Am27S47/A/SA	Am27S49/A	Am2817A	Am2864A/B
Am28F010/P/J/E	AM28F010A/P/J/E	Am28F020/P/J/E	Am28F020A/P/J/E
Am28F256	Am28F512	AM29BL162CB @56SS	AM29BL802CB @56SS
Am29DL161DB *48TS	Am29DL161DB @48FBGA	Am29DL161DT *48TS	Am29DL161DT @48FBGA
Am29DL162CB *48TS	Am29DL162CT *48TS	Am29DL162DB *48TS	Am29DL162DT *48TS
Am29DL163CB *48TS	Am29DL163CT *48TS	Am29DL163DB *48TS	Am29DL163DB @48FBGA
Am29DL163DT *48TS	Am29DL163DT @48FBGA	Am29DL164DB *48TS	Am29DL164DB @48FBGA
Am29DL164DT *48TS	Am29DL164DT @48FBGA	Am29DL316CB *40TS	Am29DL316CT *40TS
Am29DL322CB *48TS	Am29DL322CB @63FBGA	Am29DL322CT *48TS	Am29DL322CT @63FBGA
Am29DL322DB *48TS	Am29DL322DT *48TS	Am29DL323CB *48TS	Am29DL323CB @63FBGA
Am29DL323CT *48TS	Am29DL323CT @63FBGA	Am29DL323DB *48TS	Am29DL323DT *48TS
Am29DL324DB *48TS	Am29DL324DT *48TS	Am29DL400BB *44PS	Am29DL400BB *48TS
Am29DL400BT *44PS	Am29DL400BT *48TS	Am29DL640D *48TS	Am29DL640D @63FBGA
Am29DL800BB *44PS	Am29DL800BB *48TS	Am29DL800BB @48FBGA	Am29DL800BT *44PS
Am29DL800BT *48TS	Am29DL800BT @48FBGA	Am29DS163DB @48TS	Am29DS163DT @48TS
Am29DS323DB @48TS	Am29DS323DT @48TS	Am29F002B/BB	Am29F002NB/NBB
Am29F002NT/NBT	Am29F002T/BT	Am29F004BB	Am29F004BT
Am29F010/P/J/E/A	Am29F010B	Am29F016/B *44PS	Am29F016/B-E *48TS
Am29F016/B-F *48TS	Am29F016B-E *40TS	Am29F016B-F *40TS	Am29F016D *40TS
Am29F016D *44PS	Am29F016D *48TS	Am29F017B-E *40TS	Am29F017B-E *48TS
Am29F017B-F *40TS	Am29F017B-F *48TS	Am29F017D *40TS	Am29F017D *48TS
Am29F032B *44PS	Am29F032B-E *40TS	Am29F032B-F *40TS	Am29F040/B/P/J/E
Am29F080/B-E *40TS	Am29F080/B-E *44PS	Am29F080/B-F *40TS	Am29F100B *44PS
Am29F100B *48TS	Am29F100T *44PS	Am29F100T *48TS	Am29F160DB *48TS
Am29F160DT *48TS	Am29F200AB *44PS	Am29F200AB *48TS	Am29F200AT *44PS
Am29F200AT *48TS	Am29F200B *44PS	Am29F200B/BB *48TS	Am29F200T *44PS

Am29F200T/BT *48TS
Am29F400B/BB *44PS
Am29F400B/BB *48TS
Am29F400T/BT *44PS
Am29F400T/BT *48TS
Am29F800B/BB *44PS
Am29F800B/BB *48TS
Am29F800T/BT *44PS
Am29F800T/BT *48TS
Am29LV001BB
Am29LV001BT
Am29LV002B *40TS
Am29LV002BB *40TS
Am29LV002BT *40TS
Am29LV002T *40TS
Am29LV004B *40TS
Am29LV004BB *40TS
Am29LV004BT *40TS
Am29LV004T *40TS
Am29LV008B *40TS
Am29LV008BB *40TS
Am29LV008BT *40TS
Am29LV008T *40TS
Am29LV010B
Am29LV017B *40TS
Am29LV017D *40TS
Am29LV033C *40TS
Am29LV040B
Am29LV065D *48TS
Am29LV065D @63FBGA
Am29LV081 *40TS
Am29LV116BB *40TS
Am29LV116BB-F *40TS
Am29LV116BT *40TS
Am29LV116BT-F *40TS
Am29LV116DB *40TS
Am29LV116DT *40TS
Am29LV160B @48BGA
Am29LV160BB *44PS
Am29LV160BB *48TS
Am29LV160BB @48BGA
Am29LV160BB @48FBGA
Am29LV160BT *44PS
Am29LV160BT *48TS
Am29LV160BT @48BGA
Am29LV160BT @48FBGA
Am29LV160DB *44PS
Am29LV160DB *48TS
Am29LV160DT *44PS
Am29LV160DT *48TS
Am29LV160T @48BGA
Am29LV200AT *48TS
Am29LV200B *44PS
Am29LV200BB *44PS
Am29LV200BB *48TS
Am29LV200BT *44PS
Am29LV200BT *48TS
Am29LV200T *44PS
Am29LV320DB *48TS
Am29LV320DB @48FBGA
Am29LV320DT *48TS
Am29LV320DT @48FBGA
Am29LV320FB *48TS
Am29LV320FT *48TS
Am29LV400B *44PS
Am29LV400B *48TS
Am29LV400B @48BGA
Am29LV400BB *44PS
Am29LV400BB *48TS
Am29LV400BB @48BGA
Am29LV400BT *44PS
Am29LV400BT *48TS
Am29LV400BT @48BGA
Am29LV400T *44PS
Am29LV400T *48TS
Am29LV400T @48BGA
Am29LV641DH *48TS
Am29LV641DL *48TS
Am29LV800B *44PS
Am29LV800B *48TS
Am29LV800B @48BGA
Am29LV800BB *44PS
Am29LV800BB *48TS
Am29LV800BB @48BGA
Am29LV800BB @48FBGA
Am29LV800BT *44PS
Am29LV800BT *48TS
Am29LV800BT @48BGA
Am29LV800BT @48FBGA
Am29LV800T *44PS
Am29LV800T *48TS
Am29LV800T @48BGA
AM29PL160CB *44PS
AM29PL160CB *48TS
AM29PL160CT *44PS
AM29PL160CT *48TS
Am8751H
Am8753H
Am87C51
Am87C51 *44
Am87C521
Am87C521 *44
Am87C52T2
Am87C52T2 *44
Am87C541
Am87C541 *44
Am9716/2716
AmPAL18P8A/AL/L
AmPAL18P8B/Q
AmPAL20L10B/-20/A
AmPAL20R4A
AmPAL20R4B/6B/8B
AmPAL20RP10B/A/AL
AmPAL20RP4B/A/AL
AmPAL20RP6B/A/AL
AmPAL20RP8B/A/AL
AmPAL20XRP10
AmPAL20XRP4
AmPAL20XRP6
AmPAL20XRP8
AmPAL22P10/B/A/AL
AmPAL22V10/A
AmPAL22XP10
M4-128N/64 @84
M4LV-128N/64 @84
MACH 110 *44
MACH 110 @44
MACH 111 *44
MACH 120 @68
MACH 130 @84
MACH 131 @84
MACH 131/1 @84
MACH 131SP @100
MACH 210 *44
MACH 210 @44
MACH 211 *44
MACH 211SP *44
MACH 215 *44
MACH 215 @44
MACH 220 @68
MACH 221 @68
MACH 230 @84
MACH 231 @84
MACH 231/1 @84
MACH 231SP @100
MACH 435 @84
MACH LV210 *44
MACH LV210 @44
MACH5-128/104 @144
MACH5-128/120 @160
MACH5-128/68 @100Q
MACH5-128/68 @100TQ
MACH5-192/104 @144
MACH5-192/120 @160
MACH5-192/160 @208
MACH5-192/68 @100Q
MACH5-192/68 @100TQ
MACH5-256/104 @144
MACH5-256/120 @160
MACH5-256/160 @208
MACH5-256/68 @100Q
MACH5-256/68 @100TQ
MACH5-320/120 @160
MACH5-320/160 @208
MACH5-384/120 @160
MACH5-384/160 @208
MACH5LV-256/104 @144
MACH5LV-256/120 @160
MACH5LV-256/160 @208
MACH5LV-256/68 @100Q
MACH5LV-256/68 @100TQ
MACH5LV-320/120 @160
MACH5LV-320/160 @208
MACHLV5-384/120 @160
MACHLV5-384/160 @208
PAL16L8-4
PAL16L8-5
PAL16L8-7
PAL16L8D/2
PAL16R4-4
PAL16R4-5
PAL16R4-7
PAL16R4D/2
PAL16R6-4
PAL16R6-5
PAL16R6-7
PAL16R6D/2
PAL16R8-4
PAL16R8-5
PAL16R8-7
PAL16R8D/2
PAL20L8-10
PAL20L8-10/2
PAL20L8-5
PAL20L8-7
PAL20R4-10
PAL20R4-10/2
PAL20R4-5
PAL20R4-7
PAL20R6-10
PAL20R6-10/2
PAL20R6-5
PAL20R6-7
PAL20R8-10
PAL20R8-10/2
PAL20R8-5
PAL20R8-7
PAL22V10-10
PAL22V10-15
PALCE 16V8H-10/4
PALCE 16V8H-15
PALCE 16V8H-15/4
PALCE 16V8H-25
PALCE 16V8H-25/4
PALCE 16V8H-5/5
PALCE 16V8H-7/5
PALCE 16V8Q-10/4
PALCE 16V8Q-15
PALCE 16V8Q-15/4
PALCE 16V8Q-25
PALCE 16V8Q-25/4
PALCE 16V8Z-15/5
PALCE 16V8Z-25/4
PALCE 20RA10/25/4
PALCE 20RA10H
PALCE 20RA10Q-15
PALCE 20V8H-10
PALCE 20V8H-15
PALCE 20V8H-15/4
PALCE 20V8H-25
PALCE 20V8H-25/4
PALCE 20V8Q-15
PALCE 20V8Q-15/4
PALCE 20V8Q-25
PALCE 20V8Q-25/4
PALCE 22V10H-10/5
PALCE 22V10H-15
PALCE 22V10H-15/4
PALCE 22V10H-25
PALCE 22V10H-25/4
PALCE 22V10H-5/5
PALCE 22V10H-7/5
PALCE 22V10Q-10/5
PALCE 22V10Q-15/5
PALCE 22V10Q-25
PALCE 22V10Q-25/4
PALCE 22V10Z-25
PALCE 24V10
PALCE 26V12H
PALCE 26V12H/4
PALCE 29MA16/4
PALCE 610-25
PALCE 610H-15
PALCE 610H-25
PALCE 630H-15
PALLV 22V10-10
PALLV 22V10-15
PALLV 22V10-7
PALLV 22V10Z-25
PALLV16V8-10/5
PALLV16V8Z-25/5
PALLV16V8Z-30/4

AMI (Gould)

PEEL153
PEEL173
PEEL18CV8
PEEL20CG10
PEEL20CG10A
PEEL22CV10
PEEL22CV10A
PEEL22CV10A+
PEEL22CV10Z
PEEL253
PEEL273

AMIC

A27020L
A275308
A276308/E
A276308A
A277308
A278308
A278308A
A29001
A290011
A290011T
A29001T
A290021T

A290021U	A29002T	A29002U	A29010
A29040A	A29400TM *44PS	A29400TV *48TS	A29400UM *44PS
A29400UV *48TS	A29512	A29800TM *44PS	A29800TV *48TS
A29800UM *44PS	A29800UV *48TS	A29L800TM *44PS	A29L800TV *48TS
A29L800UM *44PS	A29L800UV *48TS	AP160L *44	

Analog Devices

ADuC812 @52	ADuC824 @52		

ASAHI KASEI

93C46	93C47	93C57	93C65A
93C67	AK27CX161	AK27CX162	AK27CX321
AK27CX322	AK27CX641	AK27CX642	AK28C16
AK28C64/F	AK93C45B	AK93C55B	AK93C65B
AK93C75B			

AT&T

17128	17128F	1736	1736F
1765	1765F		

ATC

24C02	24C02W	24C04	24C08
24LC02	24LC02W	24LC04	24LC08
93C46	93C56	93C66	93LC46
93LC56	93LC66		

Atmel

17C002	17C002 *20	17C002 *44	17C002A *20
17C002A *32TQ	17C010	17C010 *20	17C010A
17C010A *20	17C010A *32	17C020 *20	17C020A *20
17C040A *32TQ	17C128	17C128 *20	17C256
17C256 *20	17C512	17C512 *20	17C512A
17C512A *20	17C65	17C65 *20	17LV002
17LV002 *20	17LV002 *44	17LV002A *20	17LV002A *32TQ
17LV010	17LV010 *20	17LV010A	17LV010A *20
17LV010A *32	17LV020 *20	17LV020A *20	17LV040 *44
17LV040A *32TQ	17LV128	17LV128 *20	17LV128A
17LV128A *20	17LV256	17LV256 *20	17LV256A
17LV256A *20	17LV512	17LV512 *20	17LV512A
17LV512A *20	17LV65	17LV65 *20	24C01
24C01A	24C02	24C04	24C08
24C128	24C16	24C21	24C256
24C32	24C512	24C64	25010
25020	25040	34C128 *20	59C11
59C12/22	59C13	93C46	93C46(x8)
93C56	93C56(x8)	93C66	93C66(x8)
AT22LV10/L	AT22V10/L	AT25080	AT25128
AT25160	AT25256	AT25320	AT25640
AT25F1024	AT25F512	AT27BV400 *44	AT27BV400 *44PS
AT27C010	AT27C010L	AT27C020	AT27C040
AT27C080	AT27C1024/L	AT27C1024/L *44	AT27C128
AT27C2048/L	AT27C2048/L *44	AT27C256	AT27C256R
AT27C4096	AT27C4096 *44	AT27C512	AT27C512R
AT27C513	AT27C513R	AT27C516 *44	AT27HC1024
AT27HC1024 *44	AT27HC256/L	AT27HC256R	AT27HC256RL
AT27HC64/L	AT27HC641	AT27HC642	AT27LV010
AT27LV020	AT27LV040	AT27LV080	AT27LV1024/L
AT27LV1024/L *44	AT27LV1026 *44	AT27LV256R	AT27LV4096
AT27LV4096 *44	AT27LV512R	AT27LV520 *20SO	AT27LV520 *20TSSOP
AT28BV64	AT28C010	AT28C04	AT28C16
AT28C17	AT28C256/F	AT28C64/X	AT28C64B
AT28HC191/L	AT28HC256/L	AT28HC291/L	AT28HC64/L
AT28LV64B	AT28PC64	AT29BV010A	AT29BV020
AT29BV040A	AT29C010	AT29C010A	AT29C020
AT29C040	AT29C040A	AT29C1024 *44	AT29C1024 *48TS
AT29C256	AT29C257	AT29C512	AT29LV010A
AT29LV020	AT29LV040A	AT29LV1024 *44	AT29LV1024 *48TS
AT29LV256	AT29LV512	AT45D011 *32PLCC	AT45D011 *8SO
AT45D021 *28SO	AT45D021 *28TS	AT45D021 *32PLCC	AT45D041 *28SO
AT45D041 *28TS	AT45D041 *32PLCC	AT45D081 *28SO	AT45D081 *32TS
AT45D161 *28SO	AT45D161 *28TS	AT45D161 *32PLCC	AT45D321 *32TS
AT45DB011B *32PLCC	AT45DB011B *8SO	AT45DB021B *28SO	AT45DB021B *28TS
AT45DB021B *32PLCC	AT45DB021B *8SO	AT45DB041B *28SO	AT45DB041B *28TS
AT45DB041B *32PLCC	AT45DB041B *8SO	AT45DB081B *28SO	AT45DB081B *28TS
AT45DB081B *32TS	AT45DB161B *28SO	AT45DB161B *28TS	AT45DB161B *32PLCC
AT45DB321B *32TS	AT49BV/LV001(N)	AT49BV/LV001(N)T	AT49BV/LV002(N)

AT49BV/LV002(N)T
AT49BV/LV080 *40TS
AT49BV/LV080 *44PS
AT49BV/LV080T *40TS
AT49BV/LV080T *44PS
AT49BV/LV1614A *48TS
AT49BV/LV1614AT *48TS
AT49BV008A *40TS
AT49BV008AT *40TS
AT49BV010/LV010 *32TS
AT49BV010/LV010 *PLCC
AT49BV020/LV020 *32TS
AT49BV020/LV020 *PLCC
AT49BV040/LV040 *32TS
AT49BV040/LV040 *PLCC
AT49BV160 *48TS
AT49BV1604 *48TS
AT49BV1604A *48TS
AT49BV1604AT *48TS
AT49BV1604T *48TS
AT49BV160T *48TS
AT49BV161 *48TS
AT49BV1614 *48TS
AT49BV1614T *48TS
AT49BV161T *48TS
AT49BV2048 *44PS
AT49BV2048 *48TS
AT49BV2048A *44PS
AT49BV2048A *48TS
AT49BV320 *48TS
AT49BV320T *48TS
AT49BV321 *48TS
AT49BV321T *48TS
AT49BV4096 *44PS
AT49BV4096 *48TS
AT49BV4096A *44PS
AT49BV4096A *48TS
AT49BV4096AT *44PS
AT49BV4096AT *48TS
AT49BV512
AT49BV8011 *48TS
AT49BV8011T *48TS
AT49BV8192 *44PS
AT49BV8192 *48TS
AT49BV8192A *44PS
AT49BV8192A *48TS
AT49BV8192AT *44PS
AT49BV8192AT *48TS
AT49F001(N)
AT49F001(N)T
AT49F002(N)
AT49F002(N)T
AT49F008A *40TS
AT49F008AT *40TS
AT49F010/P/J/E
AT49F020/P/J/E
AT49F040/P/J/E
AT49F080 *40TS
AT49F080 *44PS
AT49F080/P/J/E
AT49F080T *40TS
AT49F080T *44PS
AT49F1024 *40TSW
AT49F1024/1025 *44
AT49F1025 *40TSW
AT49F1604 *48TS
AT49F1604T *48TS
AT49F1614 *48TS
AT49F1614T *48TS
AT49F2048 *44PS
AT49F2048 *48TS
AT49F4096 *44PS
AT49F4096 *48TS
AT49F4096A *44PS
AT49F4096A *48TS
AT49F4096AT *44PS
AT49F4096AT *48TS
AT49F512
AT49F516 *40TSW
AT49F8011 *48TS
AT49F8011T *48TS
AT49F8192 *44PS
AT49F8192 *48TS
AT49F8192A *44PS
AT49F8192A *48TS
AT49F8192AT *44PS
AT49F8192AT *48TS
AT49HF/F010
AT49LV1024 *40TSW
AT49LV1024/1025 *44
AT49LV1025 *40TSW
AT49LW040 *32PLCC
AT49LW040 *40TS
AT49LW080 *32PLCC
AT49LW080 *40TS
AT52BR3244 @66CBGA
AT52BR3244T @66CBGA
AT52BR3248 @66CBGA
AT52BR3248T @66CBGA
AT87F51
AT87F51 *44
AT87F51RC
AT87F51RC *44
AT87F52
AT87F52 *44
AT87F55WD
AT87F55WD *44
AT89C1051/U
AT89C2051
AT89C4051
AT89C51
AT89C51 *44
AT89C51-5
AT89C51-5 *44
AT89C51RC
AT89C51RC *44
AT89C52
AT89C52 *44
AT89C52-5
AT89C52-5 *44
AT89C55
AT89C55 *44
AT89C55-5
AT89C55-5 *44
AT89C55WD
AT89C55WD *44
AT89LS53
AT89LS53 *44
AT89LS8252
AT89LS8252 *44
AT89LV51
AT89LV51 *44
AT89LV51-5
AT89LV51-5 *44
AT89LV52
AT89LV52 *44
AT89LV52-5
AT89LV52-5 *44
AT89LV55
AT89LV55 *44
AT89S51
AT89S51 *44
AT89S52
AT89S52* 44
AT89S53
AT89S53 *44
AT89S8252
AT89S8252 *44
AT90S/LS2323
AT90S/LS2333
AT90S/LS2343
AT90S/LS4433
AT90S1200
AT90S2313
AT90S4414
AT90S4414 *44
AT90S4434
AT90S8515
AT90S8515 *44
AT90S8535
AT90S8535 *44
ATF1500/L *44
ATF1500A *44
ATF1502AS *44
ATF1502ASV *44
ATF1504AS *44
ATF1504AS *68
ATF1504AS *84
ATF1504AS *84
ATF1504ASV *44
ATF1504ASV *68
ATF1504ASV *84
ATF1508AS *100Q
ATF1508AS *84
ATF1508ASV *100Q
ATF1508ASV *84
ATF16LV8C
ATF16V8B/L
ATF16V8BQ/BQL
ATF16V8C
ATF16V8CZ
ATF20V8B/L
ATF20V8BQ/BQL
ATF22LV10C
ATF22LV10C(UES)
ATF22LV10CEXT
ATF22LV10CZ/CQZ
ATF22LV10CZ/CQZ(UES)
ATF22V10B/L
ATF22V10BQ/BQL
ATF22V10C/CQ
ATF22V10C/CQ(UES)
ATF22V10CEXT
ATF22V10CZ/CQZ
ATF22V10CZ/CQZ(UES)
ATF750C
ATF750C as V750
ATF750C as V750B
ATF750CEXT
ATF750CL
ATF750CL as V750
ATF750CL as V750B
ATMega163/L
ATMega163/L *44
ATMega83/L
ATMega83/L *44
ATtiny11
ATtiny12/V/L
ATtiny15L
ATtiny22/L
ATtiny28V/L
ATtiny28V/L *32TQ
ATV2500B
ATV2500B *44
ATV2500BQ/BQL
ATV2500BQ/BQL *44
ATV2500H/L
ATV2500H/L *44
ATV5000 @68
ATV5100 @68
ATV750/L
ATV750B/BL
ATV750BQ/BQL
T87C5111
T89C51AC2 *44
T89C51AC2 *44Q
T89C51CC01 *44
T89C51CC01 *44Q
T89C51CC02 *24SO
T89C51CC02 *28
T89C51CC02 *28SO
T89C51CC02 *32TQ
T89C51IB2 *44
T89C51IC2 *44
T89C51RB2
T89C51RB2 *44
T89C51RB2 *44TQ
T89C51RC2
T89C51RC2 *44
T89C51RC2 *44TQ
T89C51SND1 @80

BRIGHT

BM29F020B
BM29F020T
BM29F040
BM29F400B *44PS
BM29F400B *48TS
BM29F400T *44PS
BM29F400T *48TS
BM29FS020B
BM29FS020T

Catalyst

24WC128
24WC256
59C11/A/H/I
93C46
93C46(x8)
93C46J
93C46J(x8)
93C56
93C56(x8)
93C57
93C66
93C66(x8)
93C86
93C86(x8)
CAT24C02
CAT24C02A
CAT24C02AI
CAT24C02I
CAT24C04
CAT24C04I
CAT24C08
CAT24C08I
CAT24C16
CAT24C16I
CAT24LC02
CAT24LC02A
CAT24LC02AI
CAT24LC02I
CAT24LC04
CAT24LC04I
CAT24LC08
CAT24LC08I
CAT24LC16
CAT24LC16I
CAT24WC01
CAT24WC02

CAT24WC04	CAT24WC08	CAT24WC16	CAT25C01
CAT25C02	CAT25C08	CAT25C128	CAT25C16
CAT25C256	CAT25C64	CAT27010	CAT27128A
CAT27256	CAT27512	CAT2764A	CAT27C210
CAT27C210 *44	CAT27HC256	CAT28C16A/AI	CAT28C17A/AI
CAT28C256/I	CAT28C64A/AI	CAT28C64B/BI	CAT28C65A/AI
CAT28C65B/BI	CAT28F001N-B	CAT28F001N-T	CAT28F010/I
CAT28F020/I	CAT28F512/I	CAT35C102/I	

Cypress

27H010	CY2291	CY2292F	CY27C256
CY27H256	CY27H512	CY37032 *44TQ	CY37032V *44TQ
CY7C225	CY7C235	CY7C245	CY7C245A
CY7C251	CY7C254	CY7C261	CY7C263
CY7C264	CY7C266	CY7C271	CY7C271A
CY7C274	CY7C281A	CY7C282A	CY7C291
CY7C291A	CY7C292	CY7C292A	CY7C293A
CY7C330	CY7C331	CY7C332	CY7C335
CY7C341 @84	CY7C342 @68	CY7C342B @68	CY7C343 *44
CY7C344	CY7C371 *44	CY7C372 *44	CY7C373 @84
CY7C374 @84	CY7C63000	CY7C63001	CY7C63100
CY7C63100 *24SS/150	CY7C63101	CY7C63101 *24SS/150	CY7C63200
CY7C63201	CY7C63221	CY7C63231	CY7C63411 (40DIP)
CY7C63411 (48DIP)	CY7C63411 *48SSOP	CY7C63412 (40DIP)	CY7C63412 (48DIP)
CY7C63412 *48SSOP	CY7C63413 (40DIP)	CY7C63413 (48DIP)	CY7C63413 *48SSOP
CY7C63511 (48DIP)	CY7C63511 *48SSOP	CY7C63512 (48DIP)	CY7C63512 *48SSOP
CY7C63513 (48DIP)	CY7C63513 *48SSOP	CY7C63612 *24SOIC	CY7C63613 *24SOIC
CY7C63722	CY7C63723	CY7C63742	CY7C63743
CY7C64011	CY7C64011(SOIC)	CY7C64012	CY7C64012(SOIC)
CY7C64013	CY7C64013(SOIC)	CY7C64111	CY7C64111 *48SSOP
CY7C64112	CY7C64112 *48SSOP	CY7C64113	CY7C64113 *48SSOP
CY7C65013	CY7C65013 *48SSOP	CY7C65113	CY7C65113(SOIC)
CY7C66011	CY7C66011 *48SSOP	CY7C66012	CY7C66012 *48SSOP
CY7C66013	CY7C66013 *48SSOP	PAL22V10C	PAL22V10G
PAL22VP10C	PAL22VP10G	PALC16L8	PALC16R4
PALC16R6	PALC16R8	PALC22V10	PALC22V10B
PALC22V10D	PALCE 16V8	PALCE 20V8	PALCE22V10
PLD20G10C	PLDC20G10	PLDC20G10A	

Dallas

DS1220AB	DS1220Y	DS1225AB/AD	DS1225Y
DS1230Y/AB	DS1243Y	DS1244Y	DS1245Y/AB
DS1248Y	DS1250Y/AB	DS12887	DS12887A
DS1386-32K	DS1386-8K	DS14285	DS14287
DS1486	DS1642	DS1643	DS1644
DS1646	DS1647	DS1687	DS5000/T-32
DS5000/T-8	DS87C520	DS87C520 *44	DS87C530 @52
DS87C550 @68	DS89C420	DS89C420 *44	

EFST

F49B002UA			

EMC

EM78P156E	EM78P447SA	EM78P447SB	EM78P451
EM78P458			

EON

EN29F002(N)B	EN29F002(N)T	EN29F002C(N)B	EN29F002C(N)T
EN29F040/A	EN29F080 *40TS	EN29F800B *48TS	EN29F800T *48TS
EN29LV160JB *48TS	EN29LV160JT *48TS	EN29LV400JB *48TS	EN29LV400JT *48TS
EN29LV800B *48TS	EN29LV800JB *48TS	EN29LV800JT *48TS	EN29LV800T *48TS

Exel

93C46/P	93LC56	93LC66	XL2864A
XL2865A	XL28C256	XL28C64	XL28C64B
XLE28C64	XLS2864A	XLS28C16A	XLS28C17A
XLS28C64	XLS28C64B		

Fairchild

NM27C020Q	NM27C040Q	NM27C128Q	NM27C256Q
NM27C512Q	NM27LV010	NMC27C16B/BQ	NMC27C32B/BQ
NMC27C64Q			

Fujitsu

8742	MB84VD21081 @61BGA	MB84VD21082 @61BGA	MB84VD21083 @61BGA
MB84VD21084 @61BGA	MB84VD21091 @61BGA	MB84VD21092 @61BGA	MB84VD21093 @61BGA

MB84VD21094 @61BGA	MB84VD21181A @69BGA	MB84VD21182A @69BGA	MB84VD21183A @69BGA
MB84VD21184A @69BGA	MB84VD21191A @69BGA	MB84VD21192A @69BGA	MB84VD21193A @69BGA
MB84VD21194A @69BGA	MB84VD22181A @77BGA	MB84VD22182A @77BGA	MB84VD22183A @77BGA
MB84VD22184A @77BGA	MB84VD22191A @77BGA	MB84VD22192A @77BGA	MB84VD22193A @77BGA
MB84VD22194A @77BGA	MB90F245H @80TQFP	MB90F428A @100QFP	MB90F443G @100QFP
MB90F474 @100LQFP	MB90F474 @100QFP	MB90F497 @64LQFP	MB90F497 @64QFP
MB90F523 @120LQFP	MB90F523 @120QFP	MB90F523B @120QFP	MB90F543 @100QFP
MB90F546GS @100QFP	MB90F548G @100QFP	MB90F549 @100QFP	MB90F553A @100LQFP
MB90F553A @100QFP	MB90F562 @64LQFP	MB90F562 @64SHDIP	MB90F562B @64SHDIP
MB90F568 @64LQFP	MB90F568 @64QFP	MB90F574 @120QFP	MB90F574A @120LQFP
MB90F583 @100LQFP	MB90F583B @100QFP	MB90F584CA @100LQFP	MB90F594A @100QFP
MB90F598 @100QFP	MB90F598G @100QFP	MB90F654A @100LQFP	MB90F654A @100QFP
MB91F109 @100LQFP	MB91F109 @100QFP	MB91F109 @112FBGA	MB91F133 @144FBGA
MB91F133 @144LQFP	MB91F155 @144LQFP	MB91F191 @120LQFP	MB91F192 @120LQFP
MB91F361 @208QFP	MBM27128	MBM27256	MBM2764
MBM27C1000	MBM27C1001	MBM27C1024	MBM27C1024 *44
MBM27C1028	MBM27C128/P	MBM27C256	MBM27C256A
MBM27C256AP	MBM27C256H	MBM27C4096	MBM27C512/P
MBM27C64	MBM29DL161BD *48TS	MBM29DL161TD *48TS	MBM29DL162BD *48TS
MBM29DL162TD *48TS	MBM29DL163BD *48TS	MBM29DL163TD *48TS	MBM29DL164BD *48TS
MBM29DL164TD *48TS	MBM29DL321BD *48TS	MBM29DL321TD *48TS	MBM29DL322BD *48TS
MBM29DL322TD *48TS	MBM29DL323BD *48TS	MBM29DL323TD *48TS	MBM29DL324BD *48TS
MBM29DL324TD *48TS	MBM29DL400B *44PS	MBM29DL400B *48TS	MBM29DL400T *44PS
MBM29DL400T *48TS	MBM29DL640E *48TS	MBM29DL640E @63FBGA	MBM29DL800B *44PS
MBM29DL800B *48TS	MBM29DL800T *44PS	MBM29DL800T *48TS	MBM29F002B
MBM29F002SB/E *40TS	MBM29F002ST/E *40TS	MBM29F002T	MBM29F016/E *48TS
MBM29F017B-E *48TS	MBM29F017B-F *48TS	MBM29F040	MBM29F040 *32PLCC
MBM29F040 *32TS	MBM29F080/E *40TS	MBM29F080/E *44PS	MBM29F080A *48TS
MBM29F160BE *48TS	MBM29F160TE *48TS	MBM29F200B *44PS	MBM29F200B *48TS
MBM29F200BA *44PS	MBM29F200BA *48TS	MBM29F200T *44PS	MBM29F200T *48TS
MBM29F200TA *44PS	MBM29F200TA *48TS	MBM29F400B *44PS	MBM29F400B *48TS
MBM29F400T *44PS	MBM29F400T *48TS	MBM29F800B *44PS	MBM29F800B *48TS
MBM29F800T *44PS	MBM29F800T *48TS	MBM29LV004B *40TS	MBM29LV004T *40TS
MBM29LV008B *40TS	MBM29LV008T *40TS	MBM29LV016B *40TS	MBM29LV016T *40TS
MBM29LV160B *48TS	MBM29LV160B @46SON	MBM29LV160B @48BGA	MBM29LV160DB *48TS
MBM29LV160DT *48TS	MBM29LV160T *48TS	MBM29LV160T @46SON	MBM29LV160T @48BGA
MBM29LV200B *48TS	MBM29LV200T *48TS	MBM29LV400B *48TS	MBM29LV400B @48BGA
MBM29LV400T *48TS	MBM29LV400T @48BGA	MBM29LV650UE *48TS	MBM29LV651UE *48TS
MBM29LV800B *44PS	MBM29LV800B *48TS	MBM29LV800B @48BGA	MBM29LV800T *44PS
MBM29LV800T *48TS	MBM29LV800T @48BGA	MBM29PL160BD *44PS	MBM29PL160BD *48TS
MBM29PL160TD *44PS	MBM29PL160TD *48TS	MBM30LV0032 *44TS	MBM30LV0064 *44TS
MBM8532/2732			

Great Tek

ARF35LV020	ARF35LV040		

HARRIS

HM-6617	HM-6642		

Hitachi

27C4001G	462716	462732	HD404889
HD4074818FS @80	HD4074818H @80	HD407L4818FS @80	HD407L4818H @80
HD647180	HD64F2128FA @64 FP	HD64F2128PS @64 DP	HD64F2128TF @80 TFP
HD64F2132RFA @80 FP	HD64F2132RTF @80 TFP	HD64F2132RVFA @80 FP	HD64F2132RVTF @80 TFP
HD64F2134FA @80 FP	HD64F2134TF @80 TFP	HD64F2134VFA @80 FP	HD64F2134VTF @80 TFP
HD64F2138FA @80 FP	HD64F2138TF @80 TFP	HD64F2138VFA @80 FP	HD64F2138VTF @80 TFP
HD64F2142RFA @100 FP	HD64F2142RTE @100 TFP	HD64F2142RVFA @100 FP	HD64F2142RVTE @100TFP
HD64F2144FA @100 FP	HD64F2144TE @100 TFP	HD64F2144VFA @100 FP	HD64F2144VTE @100 TFP
HD64F2148FA @100 FP	HD64F2148TE @100 TFP	HD64F2148VFA @100 FP	HD64F2148VTE @100 TFP
HD64F2169YTE @144 TFP	HD64F2194CF @112 FP	HD64F2194F @112 FP	HD64F2199F @112 FP
HD64F2214BP @112 TBP	HD64F2214TE @100 TFP	HD64F2214TF @100 TFP	HD64F2215TYP @120 TFP
HD64F2238MBP @112 TBP	HD64F2238MF @100 FP	HD64F2238MFA @100 FP	HD64F2238MTE @100 TFP
HD64F2238MTF @100 TFP	HD64F2258F @100 FP	HD64F2258FA @100 FP	HD64F2258TE @100 TFP
HD64F2277RTE @100 TFP	HD64F2277RTF @100 TFP	HD64F2277TE @100 TFP	HD64F2277TF @100 TFP
HD64F2314TE @100 TFP	HD64F2315TE @100 TFP	HD64F2318VF @100 FP	HD64F2318VTE @100 TFP
HD64F2319VF @100 FP	HD64F2319VTE @100 TFP	HD64F2328F @128 FP	HD64F2328TE @120 TFP
HD64F2329BF @128 FP	HD64F2329BTE @120 TFP	HD64F2329EVF @128 FP	HD64F2329VF @128 FP
HD64F2329VTE @120 TFP	HD64F2338VF @144 FP	HD64F2339EVF @144 FP	HD64F2339VF @144 FP
HD64F2345F @100 FP	HD64F2345FA @100 FP	HD64F2345TE @100 TFP	HD64F2345TF @100 TFP
HD64F2357F @128 FP	HD64F2357TE @120 TFP	HD64F2395F @128 FP	HD64F2398F @128 FP
HD64F2398TE @120 TFP	HD64F2612F @80 FP	HD64F2623FA @100 FP	HD64F2626FA @100 FP
HD64F2633F @128 FP	HD64F2633TE @120 TFP	HD64F2636F @128 FP	HD64F2643FC @144 FP
HD64F2646FC @144 FP	HD64F2667VFQ @144LQFP	HD64F2676 @144 FP	HD64F3022F @80 FP
HD64F3022TE @80 TFP	HD64F3039F @80 FP	HD64F3039TE @80 TFP	HD64F3052F @100 FP
HD64F3052TE @100 TFP	HD64F3062AF @100 FP	HD64F3062AFP @100 FP	HD64F3062ATE @100 TFP
HD64F3062RF @100 TFP	HD64F3062RFP @100 FP	HD64F3062RTE @100 FP	HD64F3064BF @100 FP

HD64F3064F @100 FP
HD64F3064FP @100 FP
HD64F3064TE @100 TFP
HD64F3067RF @100 FP
HD64F3067RFP @100 FP
HD64F3067RTE @100 TFP
HD64F3068F @100 FP
HD64F3068TE @100 TFP
HD64F3337F @80 FP
HD64F3337TF @80 TFP
HD64F3437SF @100 FP
HD64F3437STF @100 TFP
HD64F3664BP @42 DP
HD64F3664FP @64 FP
HD64F3664H @64 FP
HD64F3854H @100 FP
HD64F3854W @100 TFP
HD64F3857FQ @144 FP
HD64F3857TG @144 TFP
HD64F7017F @112 FP
HD64F7018X @100 TFP
HD64F7044F @112 FP
HD64F7045F @144 FP
HD64F7047F @100 FP
HD64F7050SF @168 FP
HD64F7051F @168 FP
HD64F7052F @208 FP
HD64F7053F @208 FP
HD64F7054F @208 FP
HD64F7055RBP @256PBGA
HD64F7055RF @256 FP
HD64F7065AF @176 LQFP
HD64N3664FP @64 FP
HN27128AG/AP
HN27256G/P
HN27512G/P
HN27C101 (uP only)
HN27C101AG/AP
HN27C101G/P
HN27C1024HG
HN27C1024HG *44
HN27C128 (uP 10Bit)
HN27C128 (uP only)
HN27C256 (uP 10Bit)
HN27C256 (uP only)
HN27C256AG/HG
HN27C256G/FP
HN27C301AG/AP
HN27C301G/P
HN27C4000G
HN27C4096G/FP
HN27C4096G/FP *44
HN27C64G
HN28F101P
HN29WB800 *48TS
HN29WT800 *48TS
HN4827128G/P
HN482764G/P
HN58C1001
HN58C256
HN58C65

HOLTEK

HT24LC01
HT24LC02
HT24LC04
HT24LC08
HT24LC16
HT27C010
HT27C020
HT27C040
HT27C040-A
HT27C4096
HT27C4096 *44
HT27C512
HT27LC010
HT27LC020
HT27LC4096
HT27LC4096 *44
HT27LC512
HT48R10-B *18DIP
HT48R10-B *20DIP
HT48R11-B *24DIP
HT48R11-F *18DIP
HT48R11-F *20DIP
HT48R12-B *18DIP
HT48R12-B *20DIP
HT48R12-B *20SOIC
HT48R12-B *24SDIP
HT48R31-B *18DIP
HT48R31-B *20DIP
HT48R31-B *20SOIC
HT48R31-B *28DIP
HT48R32-B *18DIP
HT48R32-B *20DIP
HT48R32-B *28DIP
HT48R32-F *20SOIC
HT48R50-B *28DIP
HT48R50-B *40DIP
HT93LC46-A
HT93LC46-A(x8)
HT93LC46-B
HT93LC46-B(x8)
HT93LC56-A
HT93LC56-A(x8)
HT93LC56-B
HT93LC56-B(x8)
HT93LC66-A
HT93LC66-A(x8)
HT93LC66-B
HT93LC66-B(x8)

Hyundai(Hynix)

93C46
GMS34004TK
GMS34004TM
GMS34112TK
GMS34112TM
GMS34140TK
GMS34140TM
GMS36004TK
GMS36004TM
GMS36112TK
GMS36112TM
GMS36140TK
GMS36140TM
GMS37004TK
GMS37004TM
GMS37112TK
GMS37112TM
GMS37140TK
GMS37140TM
GMS77C1000
GMS77C1000A
GMS77C1001
GMS77C1001A
GMS80C701
GMS80C701 *44
GMS81004T *20
GMS81004T *24
GMS81004T *28
GMS81004T *44
GMS81008T *20
GMS81008T *24
GMS81008T *28
GMS81008T *44
GMS81016T *20
GMS81016T *24
GMS81016T *28
GMS81016T *44
GMS81024T *20
GMS81024T *24
GMS81024T *28
GMS81024T *44
GMS81032T *20
GMS81032T *24
GMS81032T *28
GMS81032T *44
GMS81032TL *20
GMS81032TL *24
GMS81032TL *28
GMS81032TL *44
GMS81504T
GMS81608T
GMS87C1102
GMS87C1202
GMS87C1408
GMS87C2020
GMS87C5032
GMS97C/L51
GMS97C/L51 *44
GMS97C/L54
GMS97C/L54 *44
GMS97C/L56
GMS97C/L56 *44
GMS97C/L58
GMS97C/L58 *44
GMS97C1051
GMS97C2051
GMS97C52
GMS97C52 *44
GMS97C8032
GMS97L1051
GMS97L2051
GMS99C58
GMS99C58 *44
HMS87C1102A
HMS87C1104A
HMS87C1202A
HMS87C1204A
HMS87C1302A
HMS87C1304A
HMS87C5216
HY18CV8
HY2764
HY27C64A
HY29DL162B *48TS
HY29DL162B @48FBGA
HY29DL162T *48TS
HY29DL162T @48FBGA
HY29DL163B *48TS
HY29DL163B @48FBGA
HY29DL163T *48TS
HY29DL163T @48FBGA
HY29F002B
HY29F002T
HY29F040A
HY29F040T
HY29F080T *40TS
HY29F400BG *44PS
HY29F400BT/ABT *48TS
HY29F400TG *44PS
HY29F400TT/ATT *48TS
HY29F800BG *44PS
HY29F800BT *48TS
HY29F800TG *44PS
HY29F800TT *48TS
HY29LV160BF @48FBGA
HY29LV160BT *48TS
HY29LV160TF @48FBGA
HY29LV160TT *48TS
HY29LV320BT *48TS
HY29LV320TT *48TS
HY29LV400BT *48TS
HY29LV400TT *48TS
HY29LV800BT *48TS
HY29LV800TT *48TS

ICE

25P05
28LF010

ICT

27CX010
27CX256
93C46/AP
93C56
93C66
93CX46/AP
93CX56
93CX66
AK27CX321
AK27CX322
AK27CX641
AK27CX642
PA7024
PA7128
PA7140
PA7140 *44
PA7572
PA7572 *44
PEEL153
PEEL173
PEEL18CV8
PEEL18CV8ZP
PEEL18LV8ZP
PEEL20CG10
PEEL20CG10A
PEEL22CV10
PEEL22CV10A
PEEL22CV10A+
PEEL22CV10A++
PEEL22CV10AZ
PEEL22CV10AZ+
PEEL22CV10AZ++
PEEL22CV10Z
PEEL22CV8
PEEL22LV10AZ
PEEL22LV10AZ+
PEEL22LV10AZ++
PEEL253
PEEL273

IMT

IM29F002B	IM29F002T		

Infineon.siemens

SABC501G-1E	SABC501G-1E *44	SABC504-2E *44Q	SABC505C *44Q
SABC505CA *44Q	SABC505L-4E @80	SABC508A-4E *64	SABC513A-2E *44
SABC515C-8E *80	SABC540U-1E *44	SABC541U-1E *44	SDA2516-5
SDA2526-5	SDA2546-5	SDA2586-5	SDA3526-5
SDA3546-5	SDA3586-5		

Intel

27010	27128	27128A/B	2716
27210	27210 *44	27256	2732
27512	27513	2764	2764A
27C010	27C010A	27C011	27C020
27C040	27C100	27C128	27C210
27C210 *44	27C220	27C220 *44	27C240
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GE28F320W18B @56VFBGA	GE28F320W18DB 56VFBGA	GE28F320W18DT 56VFBGA	GE28F320W18T @56VFBGA
GE28F320W30B @56VFBGA	GE28F320W30DB 56VFBGA	GE28F320W30DT 56VFBGA	GE28F320W30T @56VFBGA
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GT28F008B3-B @48BGA	GT28F008B3-T @48BGA	GT28F008S3 @40BGA	GT28F008S5/C @40BGA
GT28F016B3-B @48BGA	GT28F016B3-T @48BGA	GT28F016S3 @40BGA	GT28F016S5/C @40BGA
GT28F160B3-B @48BGA	GT28F160B3-T @48BGA	GT28F160C3B @48BGA	GT28F160C3T @48BGA
GT28F320B3-B @48BGA	GT28F320B3-T @48BGA	GT28F320C3B @48BGA	GT28F320C3T @48BGA
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RC28F320C3B @64EBGA
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RC28F320J3A @64EBGA
RC28F640J3A @64EBGA
RC28F800C3B @64EBGA
RC28F800C3T @64EBGA
RD28F1602C3B @64BGA
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RD28F3208C3B @64BGA
RD28F3208C3T @64BGA
RD28F6408J3A @72BGA
RD28F6408W18B @80BGA
RD28F6408W18T @80BGA
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TE28F800B3-T *48TS
TE28F800B3-TA *48TS
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TE28F800C3TA *48TS

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GAL20RA10/B
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PALCE 20V8H-15
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MX29F080 *40TS
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MT28F400B1WG-B *48TS
MT28F400B1WG-T *48TS
MT28F400B1WGBET *48TS
MT28F400B3SG-B *44PS
MT28F400B3SG-T *44PS
MT28F400B3WG-B *48TS
MT28F400B3WG-T *48TS
MT28F400B5SG-B *44PS
MT28F400B5SG-T *44PS
MT28F400B5WG-B *48TS
MT28F400B5WG-T *48TS
MT28F400B5WGTET *48TS
MT28F800B1SG-B *44P
MT28F800B1SG-T *44P
MT28F800B1WG-B *48TS
MT28F800B1WG-T *48TS
MT28F800B3SG-B *44PS
MT28F800B3SG-T *44PS
MT28F800B3WG-B *48TS
MT28F800B3WG-T *48TS
MT28F800B5SG-B *44PS
MT28F800B5SG-T *44PS
MT28F800B5WG-B *48TS
MT28F800B5WG-T *48TS
MT28F800B5WGBET *48TS

Mitsubishi

M5L27128K
M5L2716
M5L27256K
M5L2732
M5L27512K
M5L2764K
M5M27128P
M5M27256P
M5M27512P
M5M2764P
M5M27C100K/P
M5M27C101K/P
M5M27C102K/P
M5M27C102K/P *44
M5M27C128K
M5M27C201K
M5M27C202K
M5M27C202K *44
M5M27C256AK
M5M27C256K/P
M5M27C401K
M5M27C402K
M5M27C402K *44
M5M27C512AP
M5M28F101
M5M28FB800VP *48TS
M5M28FT800VP *48TS
M5M29FB160AVP *48TS
M5M29FB800VP *48TS
M5M29FT160AVP *48TS
M5M29FT800VP *48TS
M5M29GB160BVP *48TS
M5M29GB320VP *48TS
M5M29GB800AVP *48TS
M5M29GT160BVP *48TS
M5M29GT320VP *48TS
M5M29GT800AVP *48TS
M6MG3D641S8TP @52TS
M6MGT321S4TP @52TS

MMI

PAL10H8/-2
PAL10L8/-2
PAL12H6/-2
PAL12L10
PAL12L6/-2
PAL14H4/-2
PAL14L4/-2
PAL16A4
PAL16C1/-2
PAL16H2/-2
PAL16L2/-2
PAL16L6
PAL16L8/A/A-2/A-4
PAL16L8B/B-2/B-4
PAL16L8D
PAL16L8H-15
PAL16P8
PAL16R4/A/A-2/A-4
PAL16R4B/B-2/B-4
PAL16R4D
PAL16R4H-15
PAL16R6/A/A-2/A-4
PAL16R6B/B-2/B-4
PAL16R6D
PAL16R6H-15
PAL16R8/A/A-2/A-4
PAL16R8B/B-2/B-4
PAL16R8D
PAL16R8H-15
PAL16RA8
PAL16RP4
PAL16RP6
PAL16RP8
PAL16X4
PAL18L4
PAL20C1
PAL20L10/A
PAL20L2
PAL20L8A/A-2
PAL20L8B/B-2
PAL20R4A/A-2
PAL20R4B/B-2
PAL20R6A/A-2
PAL20R6B/B-2
PAL20R8A/A-2
PAL20R8B/B-2
PAL20X10/A
PAL20X4/A
PAL20X8/A

Mosel Vitelic

MF29F016/E *48TS
MF29F040A/P/J/E
MF29F200BA *48TS
MF29F200TA *48TS
MF29F400BA *48TS
MF29F400TA *48TS
MF29F800B/E *48TS
MF29F800T/E *48TS
MF29LV004B/E *40TS
MF29LV004T/E *40TS
MF29LV400B/E *48TS
MF29LV400T/E *48TS
MF29LV800B/E *48TS
MF29LV800T/E *48TS
MSU2952
MSU2952 *44
MSU2958
MSU2958 *44
V29C51001B
V29C51001T
V29C51002B
V29C51002T
V29C51004B
V29C51004T

Mostek

2716

Motorola

2716
M28F800A2-B *48TS
M28F800A2-T *48TS
M29F800A3-B *48TS
M29F800A3-T *48TS
MC68705P3
MC68705P5
MC68705R3
MC68705R5
MC68705U3
MC68705U5
MC68HC11A1

MC68HC11A1 @52
MC68HC11A8
MC68HC11A8 @52
MC68HC11E1 @52
MC68HC11E9 @52
MC68HC11F1 @68
MC68HC11K1 @84
MC68HC11K4 @84
MC68HC11L6 @52
MC68HC705B16 *52
MC68HC705B16 @64
MC68HC705B16N @52
MC68HC705B16N @64
MC68HC705B5 *52
MC68HC705BD3
MC68HC705BD3 *42
MC68HC705BD7
MC68HC705BD7 *42
MC68HC705BD9 *42
MC68HC705C4A
MC68HC705C4A *44
MC68HC705C8
MC68HC705C8 *44
MC68HC705C8A
MC68HC705C8A *44
MC68HC705C8A *44Q
MC68HC705C9
MC68HC705C9 *44
MC68HC705C9A
MC68HC705C9A *44
MC68HC705C9A *44QFP
MC68HC705D9
MC68HC705D9 *44
MC68HC705J1A
MC68HC705J2
MC68HC705J2(J1EMUL)
MC68HC705JJ7
MC68HC705JP7 *28SO
MC68HC705K1
MC68HC705KJ1
MC68HC705P6 *28SO
MC68HC705P6/A
MC68HC705P9
MC68HC705PL4/B
MC68HC705SR3
MC68HC705SR3 *42
MC68HC705X32 @64
MC68HC711D3
MC68HC711D3 *44
MC68HC711E20 @52
MC68HC711E9 @52
MC68HC711K4 @84
MC68HC711KA2 @68
MC68HC711L6 @68
MC68HC811E2
MC68HC811E2 @52
MC68HC908AB32 @64QFP
MC68HC908AS60A @52
MC68HC908AZ60 @64QFP
MC68HC908AZ60A @64QFP
MC68HC908BD48 *42SD
MC68HC908BD48 *44QFP
MC68HC908GP20
MC68HC908GP20 *44QFP
MC68HC908GP32
MC68HC908GP32 *42SDIP
MC68HC908GP32 *44QFP
MC68HC908JB8
MC68HC908JB8 *28SO
MC68HC908JB8 *44QFP
MC68HC908JK1
MC68HC908JK3
MC68HC908JK3 *20SO
MC68HC908JL3
MC68HC908JL3 *28SO
MC68HC908KX2
MC68HC908KX8
MCM68766
XC68HC705B32 *52

MYSON

MTV012E
MTV112E
MTV112E *44
MTV112M
MTV230M *44

NEC

78P054
8741A
8748H
D2716D
D2732D
D28C04
D28C64
uPD17P012
uPD27128
uPD27256
uPD2764
uPD27C1000
uPD27C1000A
uPD27C1001A
uPD27C1001D
uPD27C1024
uPD27C1024 *44
uPD27C1024A
uPD27C1024A *44
uPD27C2001
uPD27C256
uPD27C256A
uPD27C4000
uPD27C4001
uPD27C4096
uPD27C512
uPD27C64
uPD27C8000
uPD27C8001
uPD27HC65
uPD75P54
uPD75P64

NexFlash

NX25F011B-3V *28TS
NX25F011B-3V *8SO
NX25F011B-5V *28TS
NX25F011B-5V *8SO
NX25F021B-3V *28TS
NX25F021B-3V *8SO
NX25F021B-5V *28TS
NX25F021B-5V *8SO
NX25F041B-3V *28TS
NX25F041B-3V *8SO
NX25F041B-5V *28TS
NX25F041B-5V *8SO
NX29F010

NOVATEK

NT68F62
NT68F63
NT68F65
NT68P61A
NT68P61AU
NT68P62

NS

24C02/02L
24C04/04L
24C08
24C16
25C040
25C160
34C02
59C11
93C06
93C26
93C46
93C56
93C66
93C86A
93C86A(x8)
93CS06
93CS26
93CS46
93CS56
93CS66
COP8780
COP8780 *44
COP8781
COP8782
COP87L20/40CJ
COP87L20/40RJ
COP87L22/42CJ
COP87L22/42RJ
COP87L84BC
COP87L84Cxx
COP87L84Gxx
COP87L84Rxx
COP87L88Cxx
COP87L88Cxx *44
COP87L88EBV *44
COP87L88Exx
COP87L88Exx *44
COP87L88Gxx
COP87L88Gxx *44
COP87L88Hxx
COP87L88Hxx *44
COP87L88Kxx
COP87L88Kxx *44
COP87L88RBV *44
COP87L88Rxx
COP87L88Rxx *44
COP8ACC720 *20SO
COP8ACC728
COP8ACC728 *28SO
COP8AJC716
COP8AJC720
COP8AJC728
COP8AKC716
COP8AKC720
COP8AKC728
COP8CxC9 *44PLCC
COP8CxE9 *44PLCC
COP8CxG9 *44PLCC
COP8S/CxR9 *44PLCC
COP8SAA716
COP8SAA720
COP8SAA728
COP8SAB720
COP8SAB728
COP8SAC720
COP8SAC728
COP8SAC740
COP8SAC744 *PLCC
COP8SGE720
COP8SGE728
COP8SGE740
COP8SGE744 *PLCC
COP8SGR720
COP8SGR728
COP8SGR740
COP8SGR744 *PLCC
DM2732
DM54/74S188
DM54/74S287
DM54/74S288
DM54/74S387
DM54/74S471
DM54/74S472
DM54/74S473
DM54/74S474
DM54/74S475
DM54/74S570
DM54/74S571
DM54/74S572
DM54/74S573
DM77/87S180
DM77/87S181
DM77/87S184
DM77/87S185
DM77/87S195
DM77/87S280
DM77/87S281
GAL16V8
GAL16V8-7/-10
GAL16V8A/QS
GAL20RA10
GAL20V8
GAL20V8-7/-10
GAL20V8A/QS
GAL22CV10
GAL22V10/B
NM25C04
NM27C010
NM27C020
NM27C040
NM27C128
NM27C210
NM27C210 *44
NM27C256
NM27C512
NM27LC256
NM27LC512
NM27P040
NMC27C010
NMC27C020

NMC27C1024
NMC27C1024 *44
NMC27C128B
NMC27C128BN
NMC27C128BQ
NMC27C128C
NMC27C128CQ
NMC27C16B/BQ
NMC27C2048
NMC27C2048 *44
NMC27C210
NMC27C210 *44
NMC27C240
NMC27C240 *44
NMC27C256B
NMC27C256BN
NMC27C256C
NMC27C256Q
NMC27C32B/BQ
NMC27C512A
NMC27C512AN
NMC27C64B
NMC27C64BN
NMC27C64Q

NVM
3060

OKI
2716
28C16
MR27V1602D
MR27V1602D *44PS
MR27V1652D
MR27V1652D *44PS
MR27V1652D *48TS
MR27V3202D *44PS
MR27V3252D *44PS
MR27V401D
MR27V402D
MR27V402D *44PS
MR27V452CZ
MR27V6452D *44PS
MR27V801D
MR27V802D
MR27V802D *44PS
MSM271024
MSM271024 *44
MSM271024AS
MSM271024AS *44
MSM271024ZB
MSM271024ZB *44
MSM27128AS
MSM27256
MSM27256AS
MSM27512
MSM27512AS
MSM27512ZB-RS
MSM2764
MSM2764A
MSM2764AS
MSM2764AZB-RS
MSM2764RS
MSM2764Z
MSM27C1000
MSM27C1000ZB
MSM27C1024
MSM27C1024 *44
MSM27C1024AS
MSM27C1024AS *44
MSM27C128A
MSM27C128AS
MSM27C128AZB-RS
MSM27C1602CZ
MSM27C1602CZ *44PS
MSM27C1652CZ
MSM27C1652CZ *44PS
MSM27C1655CZ @70
MSM27C201CZ
MSM27C2048
MSM27C2048 *44
MSM27C256
MSM27C256H
MSM27C256HZB
MSM27C256ZB
MSM27C256ZB-RS
MSM27C3202CZ *44PS
MSM27C3202CZ *48TS
MSM27C3252CZ *44PS
MSM27C401CZ
MSM27C402CZ
MSM27C402CZ *44PS
MSM27C452CZ
MSM27C64AS
MSM27C802CZ
MSM27C802CZ *44PS
MSM27C822ZB
MSM27C822ZB *44PS
MSM27V1655CZ @70
MSM27V3255CZ @70

Philips(Signetics)
27C010
27C210
27C210 *44
27C240
27C240 *44
27C256
27C512
27C64A
82LS135
82LS180
82LS181
82S123
82S126
82S129
82S130
82S131
82S135
82S137
82S137A
82S137B
82S140
82S141
82S147
82S147A
82S180
82S181
82S181A
82S181B
82S185
82S185A
82S185B
82S191
82S191A
82S191B
82S23
85LPC762 *44
85LPC764 *44
85LPC767 *44
85LPC769 *44
87C055 *42 SDIP
87C451 @68
87C51
87C51 *44
87C51FA
87C51FA *44
87C51FB
87C51FB *44
87C51FC
87C51FC *44
87C51MA2 *44
87C51MB2 *44
87C51MC2 *44
87C51RA+
87C51RA+ *44
87C51RB+
87C51RB+ *44
87C51RC+
87C51RC+ *44
87C51RD+
87C51RD+ *44
87C51Sx/Ux
87C51Sx/Ux *44
87C52
87C52 *44
87C524
87C524 *44
87C528
87C528 *44
87C52Sx/Ux
87C52Sx/Ux *44
87C54
87C54 *44
87C54Sx/Ux
87C54Sx/Ux *44
87C550
87C550 *44
87C552 @68
87C552SB @68
87C552UB @68
87C554 @68
87C575
87C575 *44
87C58
87C58 *44
87C592 @68
87C652
87C652 *44
87C654
87C654 *44
87C748
87C749
87C750
87C751
87C752
87LPC759
87LPC760
87LPC761
87LPC762
87LPC764
87LPC767
87LPC768
87LPC769
89C51BA *44
89C51BP
89C51RA+
89C51RA+ *44
89C51RA2BA *44
89C51RA2BBD *44Q
89C51RA2BN
89C51RB+
89C51RB+ *44
89C51RB2BA *44
89C51RB2BBD *44Q
89C51RB2BN
89C51RB2H
89C51RB2H *44
89C51RC+
89C51RC+ *44
89C51RC2BA *44
89C51RC2BBD *44Q
89C51RC2BN
89C51RC2H
89C51RC2H *44
89C51RD+
89C51RD+ *44
89C51RD2BA *44
89C51RD2BBD *44Q
89C51RD2BN
89C51RD2H
89C51RD2H *44
89C51UB
89C51UB *44
89C51X2BA *44
89C51X2BBD *44Q
89C51X2BN
89C52BA *44
89C52BP
89C52UB
89C52UB *44
89C52X2BA *44
89C52X2BBD *44Q
89C52X2BN
89C54BA *44
89C54BP
89C54UB
89C54UB *44
89C54X2BA *44
89C54X2BBD *44Q
89C54X2BN
89C58BA *44
89C58BP
89C58UB
89C58UB *44
89C58X2BA *44
89C58X2BBD *44Q
89C58X2BN
89C60X2 *44
89C60X2 *44Q
89C61X2 *44
89C61X2 *44Q
89C660H
89C660H *44
89C662H
89C662H *44
89C664H
89C664H *44
89C668H
89C668H *44
ABT22V10
LVT22V10
P3Z22V10
P5Z22V10
P87C51X2
P87C51X2 *44
P87C51X2 *44TQ
P87C52X2
P87C52X2 *44
P87C52X2 *44TQ
P87C54X2
P87C54X2 *44

P87C54X2 *44TQ	P87C58X2	P87C58X2 *44	P87C58X2 *44TQ
P87C591 *44	P89C138	P89C138 *44	P89C238
P89C238 *44	P89C52	P89C52 *44	P89C535 *44
P89C535 @44	P89C536 *44	P89C536 @44	P89C538 *44
P89C538 @44	P89C54	P89C54 *44	P89C738
P89C738 *44	PCB2421	PCF85116	PCF8582
PCF8594	PHD 16N8	PL 22V10	PLC 16V8
PLC 18V8Z/I	PLC 20V8	PLC 22V8	PLQ22V10
PLS 104/A	PLS 105/A	PLS 151	PLS 152
PLS 153	PLS 153A	PLS 155	PLS 157
PLS 159	PLS 159A	PLS 167	PLS 167A
PLS 168	PLS 168A	PLS 173	PLS 179
PLUS 153	PLUS 16L8	PLUS 16R4	PLUS 16R6
PLUS 16R8	PLUS 173	PLUS 20L8	PLUS 20R4
PLUS 20R6	PLUS 20R8	PLUS 405	PLV 2500
PLV2500 *44	PLV5000 @68	PLV5100 @68	PLV750
PXA-G39 *44	PXA-G49 *44	PXAG37K *44	PZ3032 *44
PZ3032C/N *44	PZ3064 *44	PZ3064 *84	PZ5032 *44
PZ5032C/N *44	PZ5064 *44	PZ5064 *84	PZ5064C/N *44

PMC

PM29F002B	PM29F002T	PM29F004B	PM29F004T
PM29LV104RB	PM29LV104RT	Pm37LV512	Pm39F010
Pm39F512	Pm39LV010/R *32PLCC	Pm39LV010/R *32TS/W	Pm39LV512/R *32PLCC
Pm39LV512/R *32TS/W	Pm49FL002T *32PLCC	Pm49FL002T *32TS/W	Pm49FL004T *32PLCC
Pm49FL004T *32TS/W	Pm49FL008T *32PLCC	Pm49FL008T *32TS/W	Pm49LP002T *32PLCC
Pm49LP002T *32TS/W			

PSS

PS29FS001	PS29LP001

PTC

PT28C020

ROHM

BR29F040	BR29F200T *48TS	BR29F400T *48TS	BR9016
BR9016F	BR9020	BR9020F	BR9040
BR9040F	BR9080	BR9080F	BR93LC46F/FV
BR93LL46F/FV			

Samsung

24L16	93C46	K8D3216UBM *48TS	K8D3216UTM *48TS
K8D3316UBM *48TS	K8D3316UTM *48TS	K9F2808U0B *48TS	K9F2808U0C *48TS
K9F6408U0A *44TS	K9F6408U0C *44TS	KM2817A	KM28C16
KM28C17	KM28C256	KM28DU160B @48BGA	KM28DU160T @48BGA
KM28U160B *48TS	KM28U160T *48TS	KM28U800B *48TS	KM28U800T *48TS
KM29C010	KM29N040T *44TS	KM29N041T *44TS	KM29N16000T/TS *44TS
KM29U128T *48TS	KM29U64000T *44TS	KM29V040T *44TS	KM29V041T *44TS
KM29V16000AT *44TS	KM29W040AT *44TS	KM5MU0820B *48TSS	KM5MU0820B @48
KM5MU0820T *48TSS	KM5MU0820T @48	KM5MU1620B *48TSS	KM5MU1620T *48TSS
S524C20D11	S524C20D21	S524C80D41	S524C80D81
S524L50X51	S524LB0X91	S524LB0XB1	

SANYO

LC3MBW16541DT *48TSS	LC3MDW32541DT *48TSS	LC3MDW81541DT *48TSS	LE25FV201T
LE25FV401T	LE25FV451T *32TS/W	LE28BW168T *48TSS	LE28DW1621T *48TS
LE28DW8102T *48TSS	LE28DW8163T *48TS	LE28F1101T *40TS/W	LE28F2001ATS *32TS/W
LE28F4001ATS *32TS/W	LE28F4001T *40TS/W	LE28FU2101T *48TS	LE28FV1101T *40TS/W
LE28FV1601T *40TS/W	LE28FV1611T *48TS/W	LE28FV2001ATS *32TS/W	LE28FV4001ATS *32TS/W
LE28FV4101T *48TS	LE28FV8001T *40TS/W	LE28FV8101T *48TS/W	LE28FW2101T *48TS

SCENIX

SX18AC/DP	SX18AC/SO	SX20AC/SS	SX28AC/DP
SX28AC/SO	SX28AC/SS		

SEEQ

27128	27256	2764	27C256
DQ2804A	DQ2816A/5516A	DQ2817A/5517A	DQ2864
DQ2864H	DQ28C256	DQ28C256A	DQ28C64/A
DQ28C65	DQ28HC256/H	DQ28HC64/H	DQ36C16
DQ36C32			

Seiko Epson

S1HOH324B2B1-PB *48TS	S1HOH324B2T1-PT *48TS	S1HOH326B2B1-PB *48TS	S1HOH326B2T1-PT *48TS
S1HOH328B2B2-PB *48TS	S1HOH328B2T2-PT *48TS	S1HOH642B2B3-PB *48TS	S1HOH642B2T3-PT *48TS
S1HOH646B2B3-PB *48TS	S1HOH646B2T3-PT *48TS	S1HOH648B2B2-PB *48TS	S1HOH648B2T2-PT *48TS

SHARP

LH28F002SCN-L *44PS	LH28F002SCT-L *40TS	LH28F004BVE-B *40TS	LH28F004BVE-T *40TS
LH28F004BVT-B *40TS	LH28F004BVT-T *40TS	LH28F004SCN-L *44PS	LH28F004SCT-L *40TS
LH28F004SUT-L *40TS	LH28F004SUT-N *40TS	LH28F008BJE-B *40TS	LH28F008BJT-TTLZ2
LH28F008BVT-B *40TS	LH28F008BVT-T *40TS	LH28F008SA *40TS	LH28F008SCHSD *48TSS
LH28F008SCN-V *44PS	LH28F008SCT-V *40TS	LH28F016SA @56	LH28F016SCN-T *44PS
LH28F016SCT-T *40TS	LH28F016SUT @56	LH28F016SUT @56 X2	LH28F020SUT-L *32TS
LH28F020SUT-N *32TS	LH28F020SUT-Z1 *32TS	LH28F020SUU-N *32	LH28F032SUT @56
LH28F032SUT @56 X2	LH28F040SUTD-Z4 *40TS	LH28F160BGE-B *48TS	LH28F160BGE-T *48TS
LH28F160BJD-T	LH28F160BJE-B (16J06)	LH28F160BJE-BTLZD	LH28F160BJE-T (16J02)
LH28F160BJE-TTLZE	LH28F160BVE-B *48TS	LH28F160BVE-T *48TS	LH28F160S3 @64BGA
LH28F160S3NS @56	LH28F160S3T @56	LH28F160S5 @64BGA	LH28F160S5T @56
LH28F160SKT @56	LH28F160SPN *44PS	LH28F320BFE-PB *48TS	LH28F320BFE-PBTLZ2
LH28F320BFE-PT *48TS	LH28F320BFE-PTTLZ1	LH28F320BFN-PTTLZH	LH28F320BJD-T
LH28F320BJE-PB *48TS	LH28F320BJE-PB(OTP)	LH28F320BJE-PT *48TS	LH28F320BJE-PT(OTP)
LH28F320BJHE-PB(OTP)	LH28F320BJHE-PT(OTP)	LH28F320BJN-PTTLZC	LH28F320BMHE-PT
LH28F320S3 @56	LH28F320S3 @80 uBGA	LH28F320S3TD @56	LH28F320S5 @56
LH28F400BGE-B *48TS	LH28F400BGE-T *48TS	LH28F400BGN-B *44PS	LH28F400BGN-T *44PS
LH28F400BVE-B *48TS	LH28F400BVE-T *48TS	LH28F400SUE *48TS	LH28F400SUE-L *48TS
LH28F400SUHE-L *48TS	LH28F400SUT-L *56TS	LH28F400SUT-N *56TS	LH28F640BFE-PB *48TS
LH28F640BFE-PT *48TS	LH28F640BFN-PB *44PS	LH28F640BFN-PT *44PS	LH28F800BGE-B *48TS
LH28F800BGE-T *48TS	LH28F800BGN-B *44PS	LH28F800BGN-T *44PS	LH28F800BJE-B *48TS
LH28F800BJE-PB(OTP)	LH28F800BJE-PT(OTP)	LH28F800BJE-T *48TS	LH28F800BVE-B *48TS
LH28F800BVE-T *48TS	LH28F800BVN-T *44PS	LH28F800SGE *48TS	LH28F800SGN *44PS
LH28F800SUT @56	LH28F800SUT @56 X2	LRS13011 *40TSS	LRS13021 *40TSS
LRS1306(1338A) *48TSS	LRS1316A @72BGA	LRS1331 (Minato)	LRS1331 @72BGA
LRS1337 (Minato)	LRS1337 @72BGA	LRS1340 (Minato)	LRS1340 @72BGA
LRS1341 @72BGA	LRS1342 @72BGA	LRS1356 (Minato)	LRS1356 @72BGA
LRS1357 (Minato)	LRS1357 @72BGA	LRS1358 (Minato)	LRS1358 @72BGA
LRS1360C @72BGA	LRS1362 (Minato)	LRS1362 @72BGA	LRS1363 (Minato)
LRS1363 @72BGA	LRS1364 (Minato)	LRS1364 @72BGA	LRS1365 (Minato)
LRS1365 @72BGA	LRS1370 @72BGA	LRS1378 @72BGA	LRS1388 @72BGA
PWB16M x1A	PWB16M x2A	PWB32M x1A	PWB32M x2A
PWB8M x1A	PWB8M x1D	PWB8M x2A	PWB8M x2D

Simtek

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SONY

CXK27C1000	CXK27C1001	CXK27C256	CXK27C512

SST

25VF010	25VF020	25VF040	25VF512
27SF010	27SF020	27SF256	27SF512
27VF010	27VF020	27VF040	27VF512
28EE011	28SF040A	28VF040	29EE010
29EE011	29EE020	29EE512	29LE010
29LE020	29LE512	29SF010	29SF010 *32TS/W
29SF020	29SF020 *32TS/W	29SF040	29SF040 *32TS/W
29SF512	29SF512 *32TS/W	29VF010	29VF010 *32TS/W
29VF020	29VF020 *32TS/W	29VF040	29VF040 *32TS/W
29VF512	29VF512 *32TS/W	31LF021 *32TS/W	31LF041 *40TS/W
32HF162 *48TS	32HF162 @48TBGA	32HF164 *48TS	32HF802 @48TBGA
36VF1601 *48TS	36VF1602 *48TS	37VF010	37VF020
37VF040	37VF512	38VF166 *48TS	39LF100 *40TS
39LF200A *48TS	39LF400A *48TS	39LF400A @48BGA	39LF800A *48TS
39LF800A @48BGA	39SF010/A	39SF020/A	39SF020P
39SF040	39SF040P	39SF512/A	39VF010
39VF016Q *40TS	39VF020	39VF020P	39VF040
39VF040P	39VF040Q *40TS	39VF080Q *40TS	39VF100 *40TS
39VF160 *48TS	39VF160 @48BGA	39VF160Q *48TS	39VF160Q @48BGA
39VF200A *48TS	39VF400 *48TS	39VF400A *48TS	39VF400A @48BGA
39VF400Q *48TS	39VF512	39VF800 *48TS	39VF800A *48TS
39VF800A @48BGA	39VF800Q *48TS	49LF002	49LF002A
49LF002A *32TS/W	49LF003A	49LF004	49LF004A
49LF004A *32TS/W	49LF008A	49LF008A *32TS/W	49LF008A *40TS
49LF020	49LF040	49LF040A	49LF040A *32TS/W
49LF080A	49LF080A *32TS/W	89C54	89C54 *44
89C58	89C58 *44	89F54	89F54 *44
89F58	89F58 *44	PH28LF040	PH28SF040
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93C56(x8)
93C86
93C86(x8)
93CS46
93CS47
93CS56
93CS57
93CS66
93CS67
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GAL20V8
GAL20V8/AS/S
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M24256
M24C32
M24C64
M25P05
M25P10
M25P20
M26C201
M27128A
M27256
M27512
M2764
M2764A
M27C1000
M27C1001
M27C1024
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M27C160
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M27C320 *48TS
M27C322
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M27C4002
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M27C405
M27C512
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M27C64A
M27C800
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M27V160
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M27V322
M27V401
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M27W402 *44
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M28F102
M28F201
M28F256
M28F410 *44P
M28F420 *44P
M28F512
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M28W160BB *48TS
M28W160BT *48TS
M28W160CB *48TS
M28W160CT *48TS
M28W160T *48TS
M28W320CB *48TS
M28W320CB @48BGA
M28W320CT *48TS
M28W320CT @48BGA
M28W800B *48TS
M28W800BB *48TS
M28W800BT *48TS
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M29F080A *44PS
M29F100B *44PS
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M29F100T *48TS
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M29F102BB *40
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M29W008AT *40TS
M29W008B *40TS
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M29W022BT
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M29W160BB *44PS
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M50FW020 *32PLCC
M50FW040 *32PLCC
M50FW040 *40TS
M50FW080 *32PLCC
M50FW080 *40TS
M50LPW020 *32PLCC
M50LPW040 *32PLCC
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M50LPW080 *32PLCC
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ST62T01C
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F29C31400T *48TS
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F29C51001T
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F29C51004T
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PAL20R6A
PAL20R8A
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W27E4096
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W77E516P *44
W77E532
W77E532F *44Q
W77E532P *44
W77E58
W77E58F *44Q
W77E58P *44
W78E354
W78E354 @68
W78E365
W78E365F *44Q
W78E365P *44
W78E374E
W78E378
W78E378E
W78E378P *44
W78E51
W78E516
W78E516B
W78E516BF *44Q
W78E516BP *44
W78E516F *44Q
W78E516P *44
W78E51B
W78E51BF
W78E51BP
W78E51P
W78E52
W78E52B
W78E52BF
W78E52BP
W78E52F
W78E52P
W78E54
W78E54B
W78E54BF
W78E54BP
W78E54F/M *44Q
W78E54P *44
W78E58
W78E58B
W78E58BF *44Q
W78E58BP *44
W78E58F/M *44Q
W78E58P *44
W78E62P *44
W78E65
W78E65F *44Q
W78E65P *44
W78E858
W78E858F *44Q
W78E858P *44
W78LE51
W78LE51F
W78LE51P

W78LE52	W78LE52F	W78LE52P	W78LE54
W78LE54F	W78LE54P	W78LE58	W78LE58F *44Q
W78LE58P *44	W78LE812	W78LE812F *44Q	W78LE812P *44

Xicor

X20C04	X20C16	X2210	X2212
X22C10	X22C12	X24001	X24012
X24022	X24164	X24165	X24325
X24645	X24C01	X24C01A	X24C02
X24C04	X24C08	X24C16	X24C44
X24F008	X24F016	X24F032	X24F064
X25040	X25041	X25043	X25045
X25057	X25080	X25097	X25128
X25138	X25160	X25320	X25401
X25640	X25642	X25650	X25C02
X25F008	X25F016	X25F032	X25F064
X25F128	X2804A	X2816A/B	X2864A
X28C010	X28C256	X28C512	X28C64
X28HC256	X28HC64	X28VC256	X4C105
X84041	X88C64		

Xilinx

1701	1701 *20	1701 *20SO	1701L
1701L *20	1701L *20SO	1702L	1702L *44
1702LVC *44QFP	1704L	1704L *44	1704LVC *44QFP
17128	17128D	17128E	17128E *20
17128L	17128X/EL	17128X/EL *20	1718D
1718L	17256D	17256E	17256E *20
17256L	17256X/EL	17256X/EL *20	1736A
1736D	1736E	17512L	17512L *20
17512L *20SO	1765	1765D	1765E
1765E *20	1765L	1765X/EL	1765X/EL *20
17S05	17S05L	17S05XL	17S10
17S100XL	17S100XL *20SO	17S10L	17S10XL
17S150XL	17S150XL *20SO	17S20	17S20L
17S20XL	17S30	17S30L	17S30XL
17S40	17S40 *20SO	17S40L	17S40XL
17S40XL *20SO	17S50XL	17S50XL *20SO	XC17S100A
XC17S100A *20SO	XC17S100A *44	XC17S100A *VQ44	XC17S150A
XC17S150A *20SO	XC17S150A *44	XC17S150A *VQ44	XC17S15A
XC17S15A *20SO	XC17S15A *44	XC17S15A *VQ44	XC17S200A
XC17S200A *20SO	XC17S200A *44	XC17S200A *VQ44	XC17S300A
XC17S300A *20SO	XC17S300A *44	XC17S300A *VQ44	XC17S30A
XC17S30A *20SO	XC17S30A *44	XC17S30A *VQ44	XC17S50A
XC17S50A *20SO	XC17S50A *44	XC17S50A *VQ44	XC17V01
XC17V01 *20SO	XC17V01 *44	XC17V01 *VQ44	XC17V02
XC17V02 *20SO	XC17V02 *44	XC17V02 *VQ44	XC17V04
XC17V04 *20SO	XC17V04 *44	XC17V04 *VQ44	XC17V08 *44
XC17V16 *44	XC18V01 *20PLCC	XC18V01 *20SO	XC18V01 *44VQ
XC18V02 *44	XC18V02 *44VQ	XC18V04 *44	XC18V04 *44VQ
XC18V256 *20	XC18V256 *20SO	XC18V256 *44	XC18V256 *44Q
XC18V512 *20PLCC	XC18V512 *20SO	XC18V512 *44VQ	XC7236 *44
XC7236A *44	XC7272 @68	XC7272 @84	XC7272A @68
XC7272A @84	XC73108 @100	XC73108 @84	XC7318 *44
XC7336/Q *44	XC7354 *44	XC7354 @68	XC7372 @100
XC7372 @68	XC7372 @84	XC95108 @100Q	XC95108 @84
XC9536 *44	XC9536XL *44	XC9572 *44	XC9572 @84
XCR3032A *44VQ	XCR3032XL *44	XCR3064XL *44	XQ1701LCC *44

YMC

Y25F05			

Zilog

Z86733	Z86743	Z86743 *44	Z86E02 SL186X
Z86E02 SL1903	Z86E02 SL1925	Z86E03	Z86E04
Z86E04 PEC/SEC	Z86E04 SL186X	Z86E04 SL1903	Z86E04 SL1925
Z86E06	Z86E07	Z86E08	Z86E08 PEC/SEC
Z86E08 SL186X	Z86E08 SL1903	Z86E08 SL1925	Z86E11
Z86E11 *44	Z86E122	Z86E123	Z86E124
Z86E125	Z86E126	Z86E132	Z86E133
Z86E134	Z86E135	Z86E136	Z86E142
Z86E142 *44TQ	Z86E143	Z86E143 *44TQ	Z86E144
Z86E144 *44TQ	Z86E145	Z86E145 *44TQ	Z86E146
Z86E146 *44TQ	Z86E18	Z86E21	Z86E21 *44
Z86E23	Z86E23 *44	Z86E30	Z86E30 SL187X
Z86E31	Z86E31 SL187X	Z86E33	Z86E34

Z86E40	Z86E40 *44	Z86E40 SL187X	Z86E40 SL187X *44
Z86E43	Z86E43 *44	Z86E44	Z86E44 *44
Z86E61	Z86E61 *44	Z86E63	Z86E63 *44
Z86E72	Z86E72 *44	Z86E73	Z86E73 *44
Z86E74	Z86E74 *44	Z86E83	Z89371
Z89371 *44Q	Z89371B	Z89371B *44Q	Z8E001
Z8PE002	Z8PE003		

EQUIPMENT ADVANTECH

LABTOOL-48UXP

Intelligent Universal Programmer

User′s Manual

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Part No.
Printed in Taiwan, Dec. 2004

How to use this manual

Thank you for purchasing the LABTOOL-48UXP intelligent universal Programmer. We designed this manual to help you quickly and easily set up and use your LABTOOL-48UXP. You can use the manual in two ways:

Step by step:

The manual should be used in conjunction with the On-line help contained in the LABTOOL-48UXP software. Once you have installed the LABTOOL-48UXP hardware and the software, you should not need this manual again. You can just press ′Fl′ in the program and context sensitive help will guide you through the processes.

Quick start:

Our special Quick Start section gives experienced users the information they need to setup the LABTOOL-48UXP and software, and basic guidelines on using the LABTOOL-48UXP. If you need more information, you can refer to the rest of the manual. If you have any problems, you can work through the manual step by step for easy troubleshooting. If you have any questions, feel free to call your local distributor or sales representative.

Software Updates:

Please visit our web at *www.aec.com.tw* or *www.labtool.com* to update the software periodical.

Packing List

Before you begin installing your LABTOOL-48UXP, please make sure that the following materials have been shipped:

1. LABTOOL-48UXP intelligent universal programmer.
2. Parallel cable (1.0 meter).
3. USB cable (1.8 meter).
4. CD ROM containing the EPP interface software for Windows support Win 2000, Win 95/98/ME, Win XP and Win NT (NT 4.0 and latest version).
5. CD ROM containing the USB interface software for Windows support Win 98/ME, Win 2000, and Win XP.
6. Power cord.

Contents

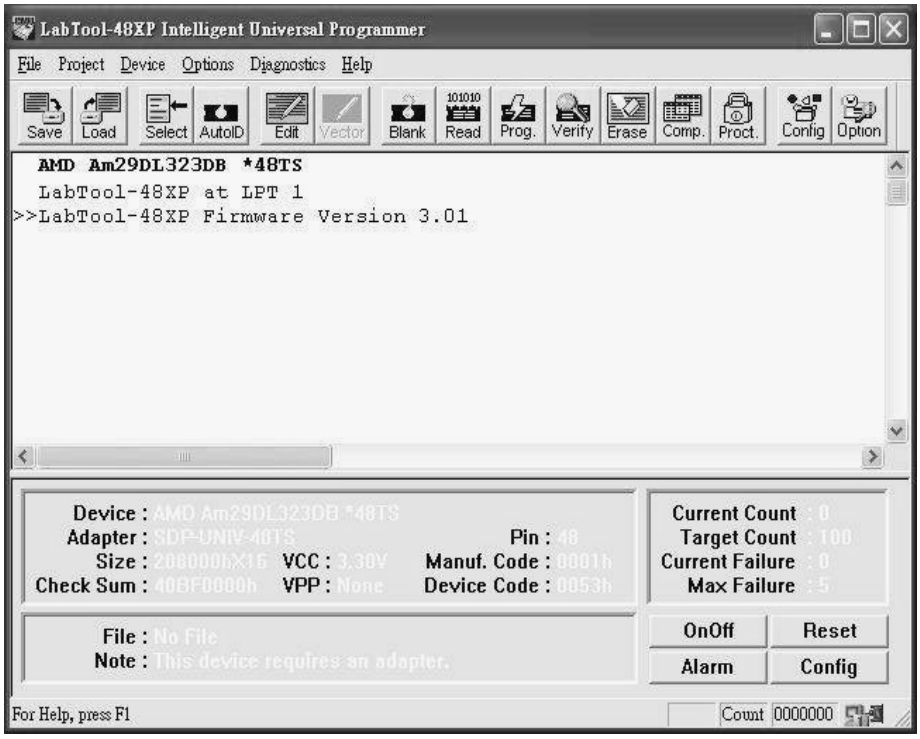
CHAPTER 0

Quick Start

This section is for experience user only, after install the LABTOOL-48UXP hardware and successfully install the system software in your PC, user can follow the quick start section start to program the device without go to the read this manual step by step.

Quick Start

After execution the LABTOOL-48UXP software, following LABTOOL-48UXP screen will display:



It shows the firmware version of LABTOOL-48UXP, the parallel port that connect to the LABTOOL-48UXP:

1) Select the chip to be programmed first.
   Use the Hot Key “ALT-C”, then type the complete part number of the chip to be programmed; or use the mouse to select the desired part number.
2) Load the design file into the buffer.
   Use the Hot Key “ALT-L”, then specify the origin of the file and load.
3) Alternatively, you can read a master chip into the buffer instead

of a design file.

Read operation (Hot Key ALT-R), you can transfer the chip′s contents into the buffer.

4) Insert blank chip of the same type into the ZIF sockets, set the device operation option (Hot Key F4, detail of device option, reference to chapter 4 of this manual) then press program (Hot Key ALT-P).

5) To speed up throughput, user can change the mode to Mass production mode (move the mouse to device, click the left key of mouse moving the cursor to mass production mode and click the left key of mouse again). After entering this mode, the LABTOOL-48UXP will program chips automatically after the chip has properly inserted into the socket of the LABTOOL-48UXP.

6) If the chip has configuration byte for set up the oscillator type, watch dog, code protect, etc in the chip. User need to enable the configuration (Hot Key ALT-G) then edit the desired set up in to the configuration byte, then perform memory protect/program configuration in the SW to program the configuration byte of the chip, the configuration menu only available if the chip has this specific function.

7) Program the configuration byte or protect the chip can also be done in single key press or in mass production mode without need to press the memory protect separately, to achieve this user need to enable the memory protect in the device operation menu first then after perform program, the programmer will program the main buffer then program the configuration byte or protect the chip in sequence. For chip has memory protect function, after the code protect bit been set and perform protect, the chip will not allow to read back again and can not verify too.

8) For a detailed explanation of the device operation options,

please refer to Chapter 3 and 4.

CHAPTER 1

General Information

Introduction

The LABTOOL-48UXP is a high performance intelligent PC-based universal programmer that works through your PC′s parallel port. It features 48-pin ZIF sockets, supports all kind of programmer chip in the market which include CPLD, EPROM, EEPOM, Serial EEPROM, Flash memory and MCU, extremely high throughput, 5V and 3V chip support in both Vcc and I/O, lower voltage chip (for example 1.8V Vcc and I/O support) also possible through special adapter, device insertion and continuity checks, all within a PC-based design. Device updates are disseminated through software, giving our customers quicker and more flexible access to new chip support.

Features

Universal adapter below 48 pin

The LABTOOL-48UXP is designed to meet you future needs in high density Flash chips. Using the resources of your PC, it supports 32K bit up to over G bit memory chips without upgrading its hardware. The LABTOOL-48UXP also has a universal adapter that accommodates 48-pin TSOP, 44-pin PLCC, 40-pin TSOP, and 32-pin TSOP that support all the chip in same adapter which eliminates the need to buy multiple adapters and saves you money.

Unbeatable speed

The LABTOOL-48UXP′s on-board intelligence reduces system overhead to a minimum. It can program Flash chips within 2.5 second per M bit (for example, AMD29DL323 can be programmed by LABTOOL-48UXP within 80 seconds). An experienced operator can program thousands of high-density chips per day.

Device-insertion and continuity checks – No mistakes!

The LABTOOL-48UXP performs device-insertion and continuity checks before programming each device. It can detect poor pin contact, upside-down device insertion, incorrect position, and pin number mismatch. This function protects your pocketbook by preventing expensive chip damage caused by operator mistake.

Auto-sensing and self-programming

The LABTOOL-48UXP has implemented patented technology to meet mass-production requirements. When a chip insert into the ZIF socket, the LABTOOL-48UXP will start to program the chip automatically, operator just follow the LED to remove the chip and insert the chip without need to press any key.

Project file “Save and Load”

You can save the program configuration project file that contains the device selection, the buffer data, and all of the program setup options. This file can be recalled at any time for future use without having to go through the setup procedure again. This allows you to pass your design file to the production department without mistakes.

Variable VCC with one or two-pass verification

The LABTOOL-48UXP allows users to select the verification voltage after chip programming is complete, e.g., Vcc +/-5%, V_{cc}+/-10%, Vcc can range from 2V to 7.5V. Verification ensures that the chips have been properly programmed, with no data retention problems.

Device support summary

Over 6500 chips support and increase the chip support through software update from *www.aec.com.tw*. Normally we add more than 100 new chips in each quarter’s software update.

For detail of the update chips support, please down load or view all update devices from the web:

Using the LABTOOL-48UXP Software

Menus

Accessing the menus can be done in two ways:

1. Use the mouse and click on the menu option displayed at the top of the screen. A pull-down menu will appear, and you can select the option you desire by clicking on that option. If you do not have a mouse available, you can also use the keyboard to access the menus. Press [F10] to activate the main menu bar.
2. Select the sub-menu that you want to use with the left and right arrow keys, and press <ENTER> to activate the sub-menu. Use the up and down arrows to select an option to execute. Press <ENTER> to execute the command.

Hot keys

Most of the options available on the menus can also be executed by pressing the hot key associated with that option. To see what the hot key is for a certain option, look on the menu where the option is located. If a hot key is available, it will be displayed next to the option name.

CHAPTER 2

Installation

Minimum PC System Requirements

Win 95/98/ME, Win 2000, Windows XP, Win NT 4.0 or latest (NT OS system, need NT System ADM).

CUP: PII 750 and above.

RAM: 64MB minimum, 128 MB recommended.

HD: 16 MB of free hard disk space.

Interface:

1. D-25 connector with parallel port ECP or EPP mode, EPP mode recommended.
2. USB device connector supports USB1.0/1.1/2.0.

CD ROM Driver.

Installing the LABTOOL-48UXP Hardware

1. Connect the power cord to the LABTOOL-48UXP power outlet.
2. Connect the LABTOOL-48UXP to a parallel port or USB port using the cable supplied.
3. Turn the LABTOOL-48UXP power on.
4. The LABTOOL-48UXP will perform self-test first, the green LED lamp will on (good) if the system pass self test.

Installing the LABTOOL-48UXP Software

1. Insert the CD ROM into CD driver of your PC, in my computer ICON, double click the E driver (CD ROM); this activates the E: Drive.
2. Double click the set up ‘setup.exe’ ICON will starting the

installation program.

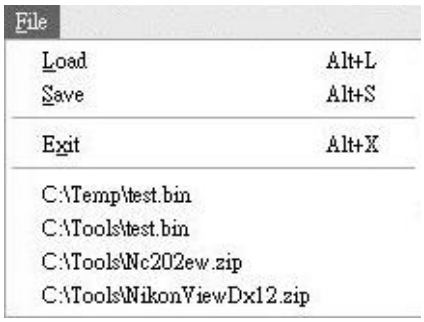
3. Following successful installation, run the software by executing LT-48UXP by double click the LABTOOL-48UXP ICON. The screen will display LABTOOL-48UXP firmware version and indicate which parallel port is attached to the LABTOOL-48UXP programmer.

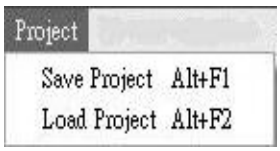
Upgrading the LABTOOL-48UXP Software

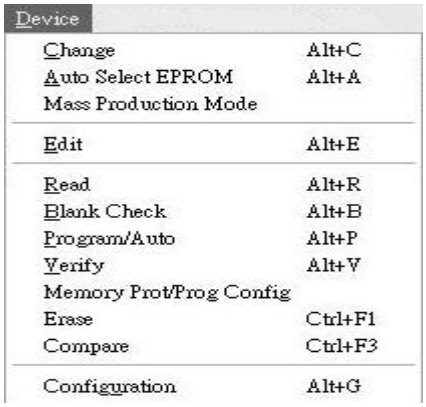
Advantech provide quarterly formal releases of the LABTOOL-48UXP software on web, please download software from web at *http//:www.aec.com.tw* or *www.labtool.com*

CHAPTER 3

Command Hierarchy







LABTOOL-48UXP Command Hierarchy

System command	Operation command	Hot Key
File (ALT-F)	Save Buffer	ALT-S
	Load File	ALT-L
	Exit	ALT-X
Project (ALT-J)	Save Project	ALT-F1
	Load Project	ALT-F2
Device (ALT-D)	Change	ALT-C
	Edit	ALT-E
	Read	ALT-R
	Blank Check	ALT-B
	Program/Auto	ALT-P
	Verify	ALT-V
	Erase	Ctrl-F1
	Compare	Ctrl-F3
	Configuration	ALT-G
Options (ALT-O)	Modify Programming Parameter	F3
	Device Operation Options	F4
	Parallel Port Selection	F5
	Statistics	F6
Diagnostic	Self Test	F7
Help (ALT-H)	Help Topic	
	About	

CHAPTER 4

Operation

LED Display

The LABTOOL-48UXP has a three LED display to indicate the status of the socket. Read this section carefully to avoid damage to chips.

Warning: Do not insert or remove a chip from a socket while the yellow LED is on (Busy)!

Green LED on (Good) The last operation result passed.

Yellow LED on (Busy) The socket is busy; do not remove or insert the chip on the ZIF socket before green LED or red LED on.

Red LED on (Error) The last operation resulted in failure.

Flashing LED, 5Hz frequency. This only applies to mass production mode, the chip pass the program and verify cycle and waiting for operator to remove the chip and insert a new chip.

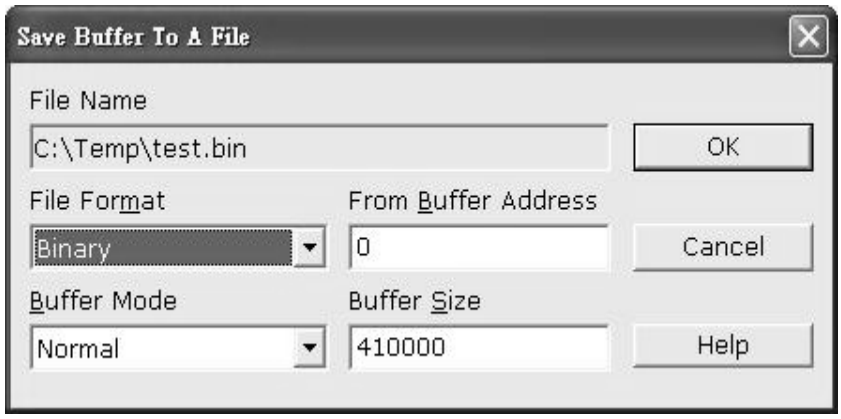
File Commands

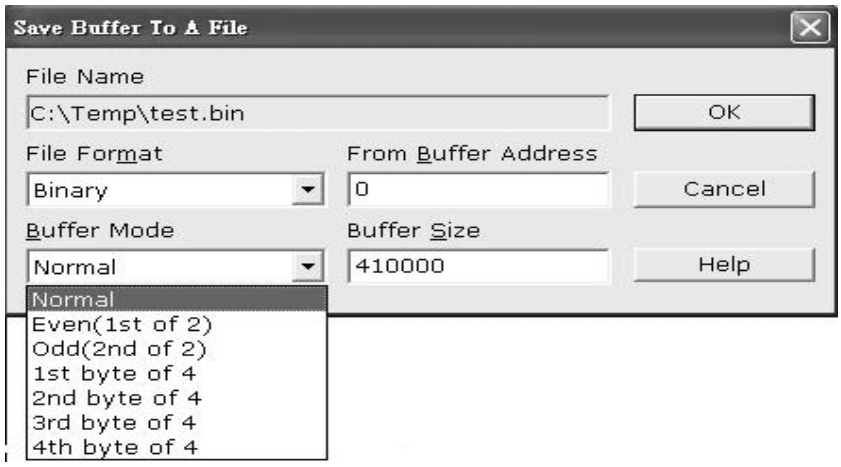
Save Buffer to File

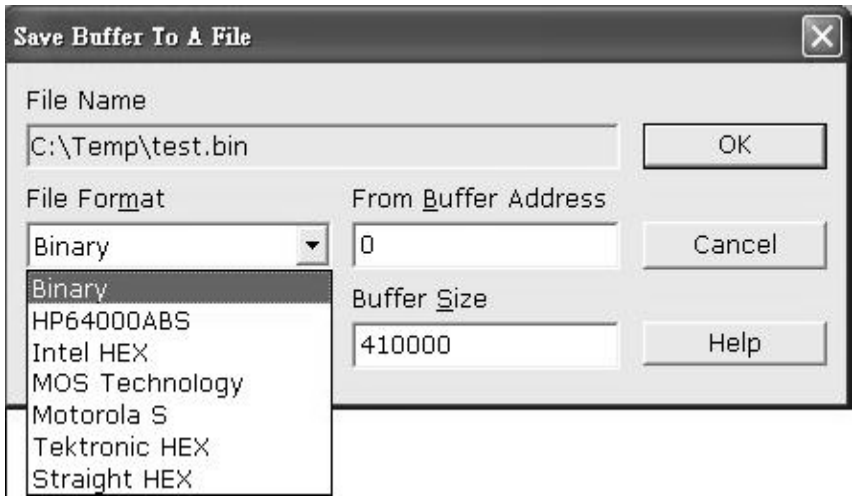
Menu *File / Save Buffer*

Hot key *Alt-S*

This option is used to save the memory buffer to a file on the hard disk. Select a file (to overwrite!) using the mouse, or type the file name in the box provided. You can also type in a file spec. (e.g. *.hex) at the Name prompt. This will display all the files of the specified type, and you can then select the required file to overwrite.


Save Buffer To A File
File Name
C:\Temp\test.bin
OK
File Format
From Buffer Address
Binary
0
Cancel
Buffer Mode
Buffer Size
Normal
410000
Help


Save Buffer To A File
File Name
C:\Temp\test.bin
OK
File Format
From Buffer Address
Binary
0
Cancel
Buffer Mode
Buffer Size
Normal
410000
Help
Normal
Even(1st of 2)
Odd(2nd of 2)
1st byte of 4
2nd byte of 4
3rd byte of 4
4th byte of 4


Save Buffer To A File
File Name
C:\Temp\test.bin
OK
File Format
From Buffer Address
Binary
0
Cancel
Buffer Size
410000
Help
Binary
HP64000ABS
Intel HEX
MOS Technology
Motorola S
Tektronic HEX
Straight HEX

File name Specify the destination and file name which you want to save to.

File format Select the file format of your output file, click the right key of mouse, all available file format will display, move the mouse to the select file format and click the right key of the mouse will select the file, available file format include Binary, HP64000ABS, Intel Hex, MOS Technology Hex, Motorola S format, Tektronic Hex, and Straight Hex.

Buffer mode This Buffer mode is to split your buffer according to the mode selection, detail of the split function as following explains.

Normal (default)
Every byte is written to the output file.

Odd

Every Odd byte is written to the output file.

Even
Every Even byte is written to the output file.
The following four options are used to write the buffer into four different files:

1st byte of 4
This writes the bytes 1,5,9,13, … into the output file.

2nd byte of 4
This writes the bytes 2,6,10,14, ... into the output file.

3rd byte of 4

This writes the bytes 3,7,11,15, ... into the output file.

4th byte of 4

This writes the bytes 4,8,12,16, … into the output file.

From Buffer address This specify the start address of the buffer you want to save the file, default from 0000h, any address (0h to Max. of the buffer address can be edit)

Buffer size The buffer size is depend on the chip you select for example when select 29F010 (the buffer size will be 1Mbit which is 20000h)

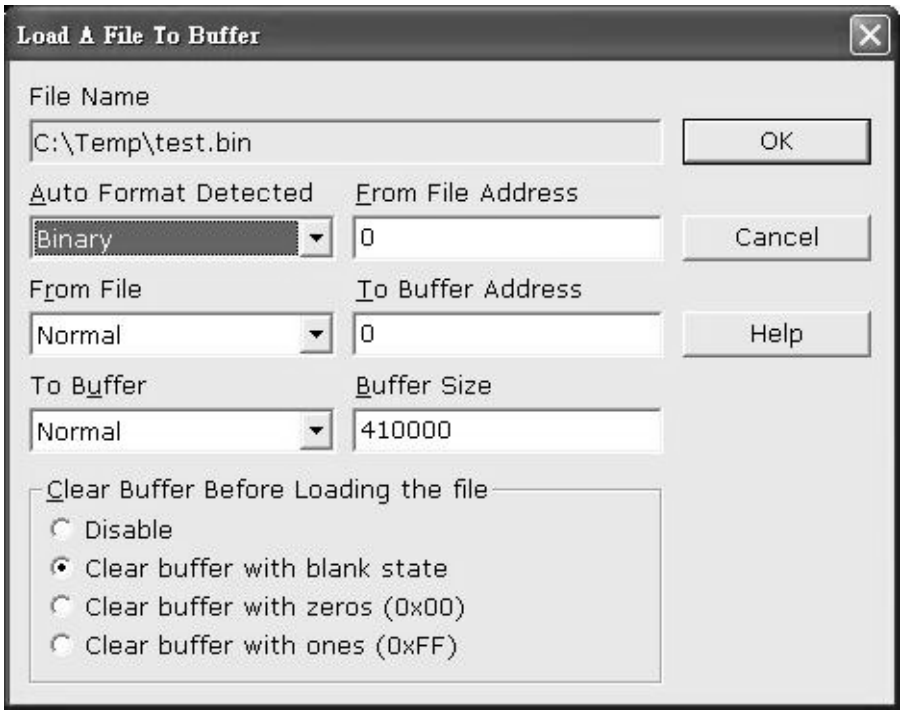
Load File to Buffer

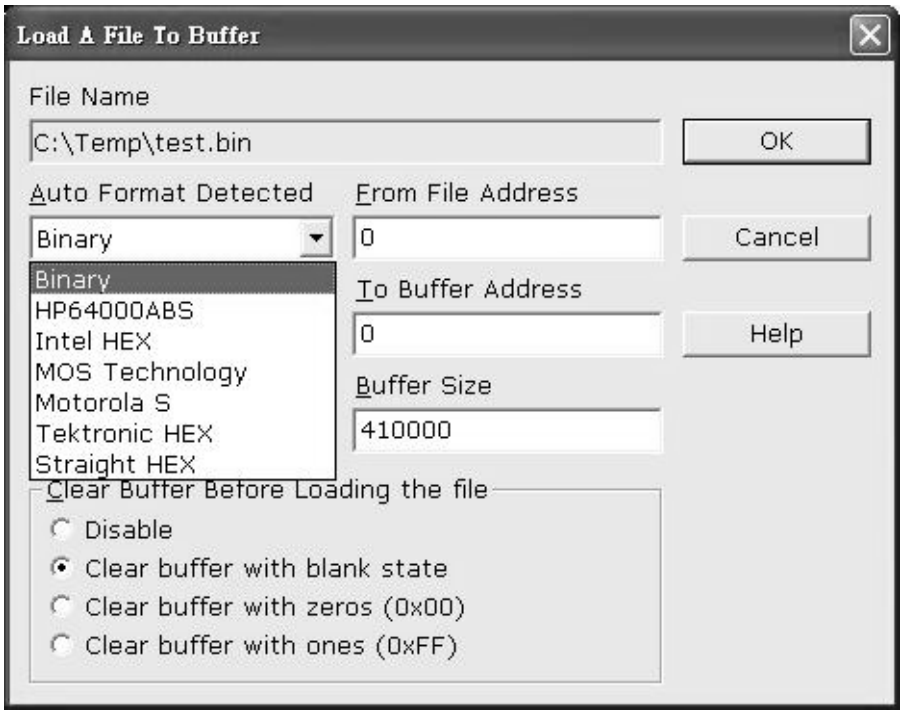
Menu *File / Load File*

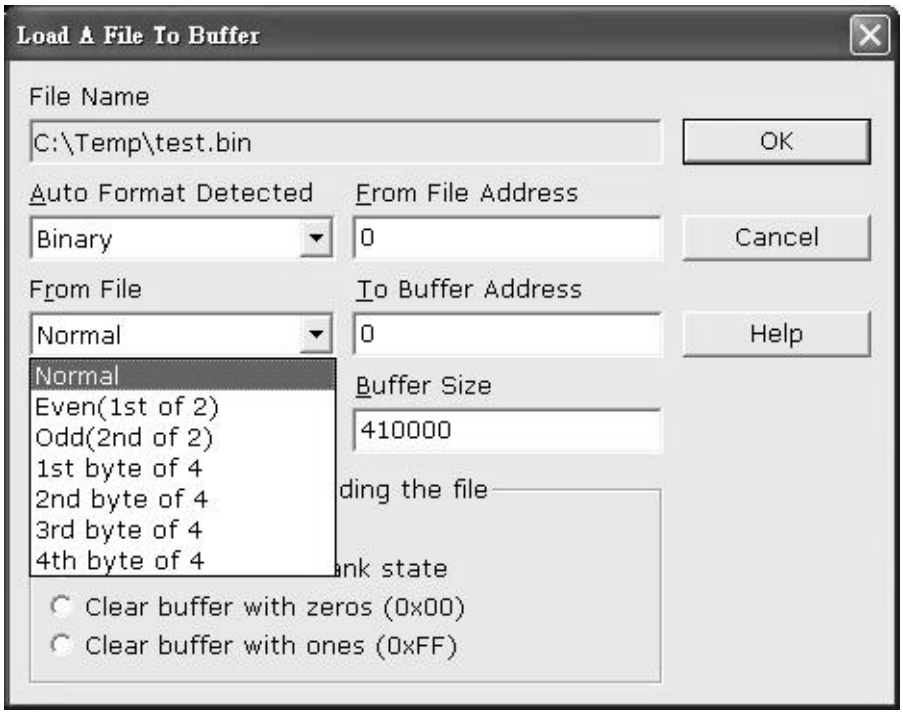
Hot key *Alt-L*

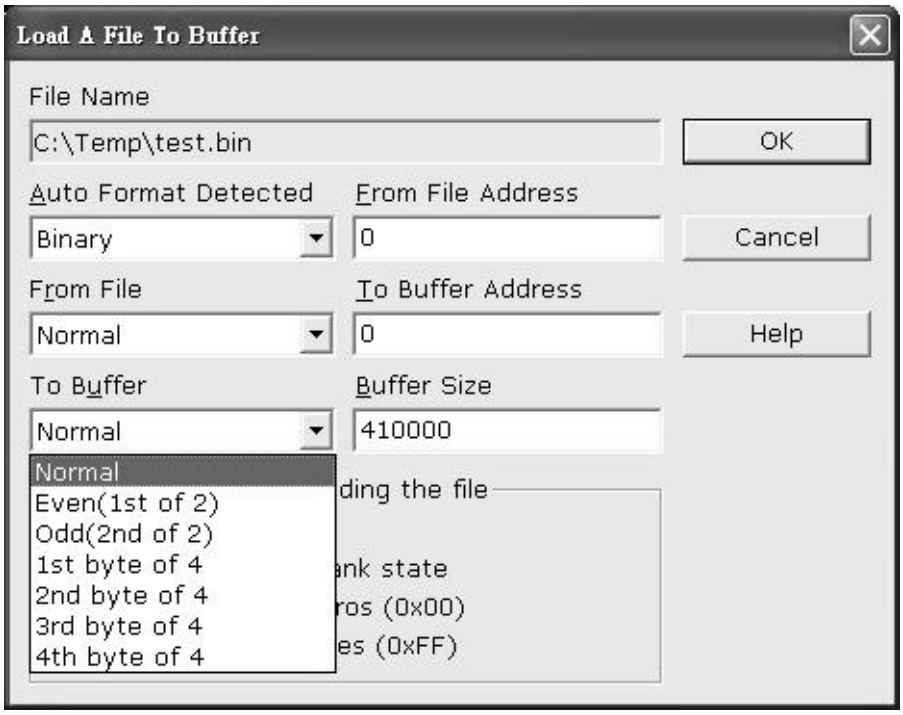
This option loads a file from disk into the memory buffer. The type of files that can be loaded for a device depends on the device type.

Select a file to load using the mouse, or type the filename in the box provided. You can also type in a file spec. (e.g. *.hex) at the name prompt. This will display all the files of the specified type, and you can then select the required file to load.


Load A File To Buffer
File Name
C:\Temp\test.bin
OK
Auto Format Detected
From File Address
Binary
0
Cancel
From File
To Buffer Address
Normal
0
Help
To Buffer
Buffer Size
Normal
410000
Clear Buffer Before Loading the file
Disable
Clear buffer with blank state
Clear buffer with zeros (0x00)
Clear buffer with ones (0xFF)


Load A File To Buffer
File Name
C:\Temp\test.bin
OK
Auto Format Detected
From File Address
Binary
0
Cancel
Binary
HP64000ABS
Intel HEX
MOS Technology
Motorola S
Tektronic HEX
Straight HEX
To Buffer Address
0
Help
Buffer Size
410000
Clear Buffer Before Loading the file
Disable
Clear buffer with blank state
Clear buffer with zeros (0x00)
Clear buffer with ones (0xFF)


Load A File To Buffer
File Name
C:\Temp\test.bin
OK
Auto Format Detected
From File Address
Binary
0
Cancel
From File
To Buffer Address
Normal
0
Help
Normal
Even(1st of 2)
Odd(2nd of 2)
1st byte of 4
2nd byte of 4
3rd byte of 4
4th byte of 4
Buffer Size
410000
ding the file
nk state
Clear buffer with zeros (0x00)
Clear buffer with ones (0xFF)


Load A File To Buffer
File Name
C:\Temp\test.bin
OK
Auto Format Detected
From File Address
Binary
0
Cancel
From File
To Buffer Address
Normal
0
Help
To Buffer
Buffer Size
Normal
410000
Normal
Even(1st of 2)
Odd(2nd of 2)
1st byte of 4
2nd byte of 4
3rd byte of 4
4th byte of 4
ding the file
nk state
ros (0x00)
es (0xFF)

File name This specifies the file name and its destination

Auto Format Detected

The software automatically detects the format of the file that is to be loaded. If the desired format of the file different from the format detected, select the correct file format by move the cursor to the selection position, click the right bottom of the mouse, move it to desired file format and click the right mouse bottom, available file format include: Binary, HP64000ABS, Intel Hex, MOS Tech Hex, Motorola S format, TEK Hex, and Straight Hex.

From File to buffer

This option indicates which bytes must be read in the input file. Select the required choice, default with normal selection, this load all the file into the buffer, also available in Even (only even byte load into the buffer), Odd (load the odd byte to the buffer), also available in 1st byte of 4, 2nd byte of 4, 3rd byte of 4, 4th byte of 4. Details of the selection, reference “save buffer to file” section.

To Buffer

This option indicates where the byte previously read is to be written. This enables you to ‘build’ the memory buffer from several files, default section with normal (load all the file to the buffer), Even means load the file to even byte of the buffer, Odd means load the file into the odd byte of the buffer, other selection include 1st of 4 byte, 2nd of 4 byte, 3rd of the 4 byte, and 4th of the 4 byte.

From File Address

Only a selected range of file to be load input buffer, fill in the address that will contain the first byte into this box, this is the starting address of the file to be load.

To Buffer Address

Starting address of the buffer to load the file into, if the data read is to be copy into a specific area of the buffer, fill in the starting address here.

Size

This box contains the buffer size. By default, it is the same size as the device selection in the LABTOOL-48UXP screen. If you want to download a file into memory that is bigger than the active device, insert the size here (or in Options | Operation Options).

Clear Buffer Options

Four options are available during memory buffer data loading. The default option is to clear the buffer to its blank state prior to data loading.

Disable

This option leaves the original buffer data unchanged, but then overwrites it with the contents of the newly loaded file.

Blank state

This option clears the buffer to the device blank state, (using command 00 or FF, depending on device selection), then overwrites the buffer during file loading.

0x00

First clears the buffer of its contents using command 00, then over-writes the buffer with the new file contents

0xFF

First clears the buffer of its contents using command FF, then over-writes the buffer with the new file contents.

Exit

Menu *File / Exit*

Hot key *Alt-X*

Quit the LABTOOL-48UXP program

Project File Commands

Save Project

Menu *Project / Save Project*

Hot key *Alt-F1*

This option saves the current setup of the LABTOOL-48UXP software into a project file. The file includes devices selected, buffer data, operation options setup, and device configuration setup. You can also attach a footnote to this project file. The project file acts as macro, eliminating the need to go through each procedure during future programming sessions.

Load Project

Menu *Project / Load Project File*

Hot key *Alt-F2*

This option loads the desired project file. After the project file has been loaded, you can immediately program the chip using the data and setup functions selected.

Device Commands

Change Device

Menu *Device / Change Device*

Hot key *Alt-C*

This option is used to select a new device as the active device. It is important to select the correct device, as the algorithms used to program devices are device-specific. The following screen will appear:

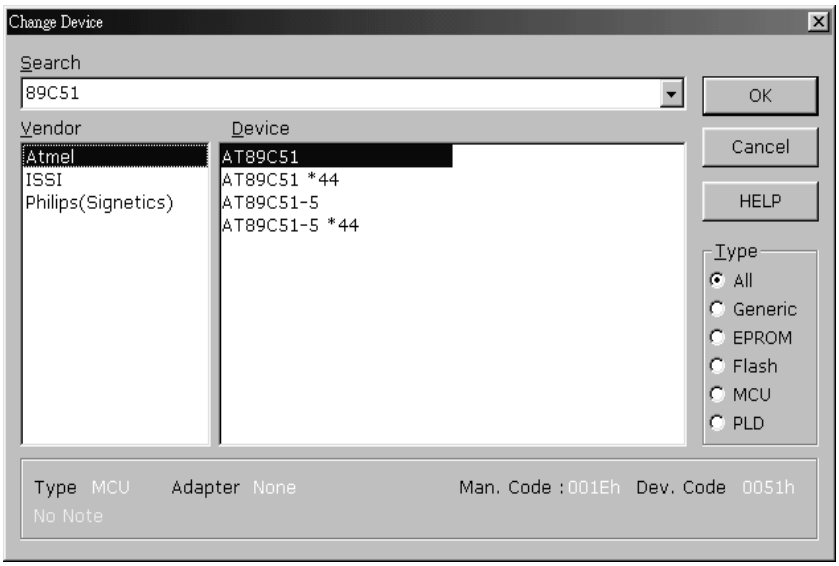


Figure 4.1 Screen for selecting Change Device

Special note in device package and its selection

In the above screen, you can find both AT89C51 and AT89C51*44 selections, the AT89C51 means this is a 40 pin DIP chip, no adapter request and 89C51*44 means the chip is 44 pin PLCC or QFP/TQFP, after select the 89C51*44, in the bottom of the software screen will display chip information and the adapter requirement. In this example, it shows SDP-UNIV-44 as recommend adapter, it means for 44 PLCC chip, you need the 44 pin PLCC universal adapter, if your chip is 44 QFP or TQFP, you will need a 44 QFP (SDP-UNIV-44TQ) or 44 TQFP (SDP-UNIV-44TQ) adapter.

If you have a 3rd party 44 PLCC adapter that swap the 44 pin PLCC chip into a 40 pin DIP chip (emulated the 44 PLCC as 40 pin DIP), you can select the 89C51 in software selection and using this 3rd

party adapter.

Other useful example in device, package and adapter.

1) For example a 1M bit flash (29F010), this chip has three kind of packages, 32 pin DIP, 32 pin PLCC and 32 pin TSOP, in LABTOOL-48UXP software, it only available in DIP package as selection, to program a 32 PLCC chip, you will need a 32 pin DIP to 32 pin PLCC one to one pin swap adapter (PLCC 3232-11), for 32 pin TSOP, you will need a SDP-UNIV-32TS.
2) For example, a GAL22V10 chip, this chip has two packages (24 pin DIP or 28 pin PLCC), LABTOOL-48UXP only shows 24 pin DIP in device selection, to program the 28 pin PLCC, a 28 pin PLCC to 24 DIP adapter to emulated the 24 pin DIP chip is required (PLCC 2824-04).
3) 27C128/256 EPROM chip, the chip available in 28 pin DIP and 32 pin PLCC, to program the 32 pin PLCC, customer needs a 32 pin PLCC to 28 pin DIP adapter, it emulated the 32 pin PLCC as 28 DIP, this adapter is PLCC 3228-11.
4) Other SOIC chips may have the DIP/SOIC package, if the chip has the same pin out and pin count in DIP and SOIC, select the DIP with universal SOIC adapter will program the SOIC chip (for example Pic16F73 with SDP-UNIV-28SO/300 adapter will program 16F73 SOIC chip).

1. Select the type of device that will be the active device.

   Mouse
   Click on “All”, “EPROM” or “MPU”.

Keyboard

Press TAB until the cursor is flashing in the “Type” box. Use the up and down arrows to go to the appropriate type. Press the space bar to select the type.

2. Enter the part number, the manufacturer number, or parts of both in the “Search” box.

   Mouse

   Click on “Search”. Type in the character.

   Keyboard

   Press TAB until the cursor flashes in the “Search” box. Type in the known characters. All the devices that satisfy this partial information will be displayed. Use the mouse to select a device, and click “OK”. If you are not using a mouse, use the TAB key to skip between the various screens, and use the arrow keys to move around in each screen.

Auto Select EPROM

Menu *Device/ Auto Select EPROM*

Hot key *Alt-A*

This function allow the user to detect which EPROM/Flash chip has been inserted in the LABTOOL-48UXP ZIF socket, all the EPROM or Flash memory chip has manufacture ID and device ID in the chip (hardware ID), when perform this function, the LABTOOL-48UXP applied a 12V high voltage to the A9 location of the chip, then read out the chip’s hardware ID and compare to library then display the possible chip in the screen.

This Auto ID only available for 32 pin or 28 pin EPOM and Flash memory chip, it can not applied to MCU, PLD or other serial PROM, EPROM/Flash chip with over 40 pin do not have

such a function since the A9 location do not standardize for chip over 40 pin, using such a function may damage the chip since a 12V high voltage will applied to the chip and cause the damage of the chip by accident.

Mass-production Mode

Menu *Device / Mass Produce*

The LABTOOL-48UXP can be use as a mass-production programmer for manufacturing. When enter mass production mode, all keyboard and mouse functions are disabled. The operator needs only to insert the chip into the ZIF socket, wait until the green LED next to the socket flash, remove the programmed chip and insert new chip. Anyone can do the job well without special training or skills. Since all keyboard and mouse functions are disabled, the possibility of errors being caused by pressing the wrong keys or changing the buffer′s contents are eliminated.

In mass production mode, the LABTOOL-48UXP first performs an insertion test and an ID check on newly inserted chip. It then automatically programs the chip.

Note: *The insertion test must be enabled in operation option set up in mass-production mode to ensure yield rate of programming.*

Necessary set up in mass production mode.

After enter mass production mode a series screen will display and asking the user to fill the set up and confirm it, first you need to fill the operation set up menu (for operation set up, please reference to the device operation option section) then configuration set up menu (this configuration set up menu is device specific, only chip with configuration register has this

menu and the contents is different from chip to chip), reference to device configuration section. The last set up menu is statistic configuration set up, detail of the statistic please reference to statistic section of this manual.

Start the mass production mode

After fill and confirm all the above set up, the figure 4.2 screen will display, inset the chip in the ZIF socket and the screen of the ZIF socket will change color showing the chip insert into the ZIF socket, green color indicate the pin has contact with the ZIF socket properly.

No any error occur, the programmer will perform all the job define by the operation option, after complete the programming a beep will generated by PC and the good LED lamp will flash indicate program chip successfully. Operator just remove the chip and insert a new chip in the socket the programming process will continuous till next error occur or the target quantity / failure rate hit the statistic set up. No change in color means no contact, red color shows program error when attempt to program the chip, PC will generated two tone to notice the operator.

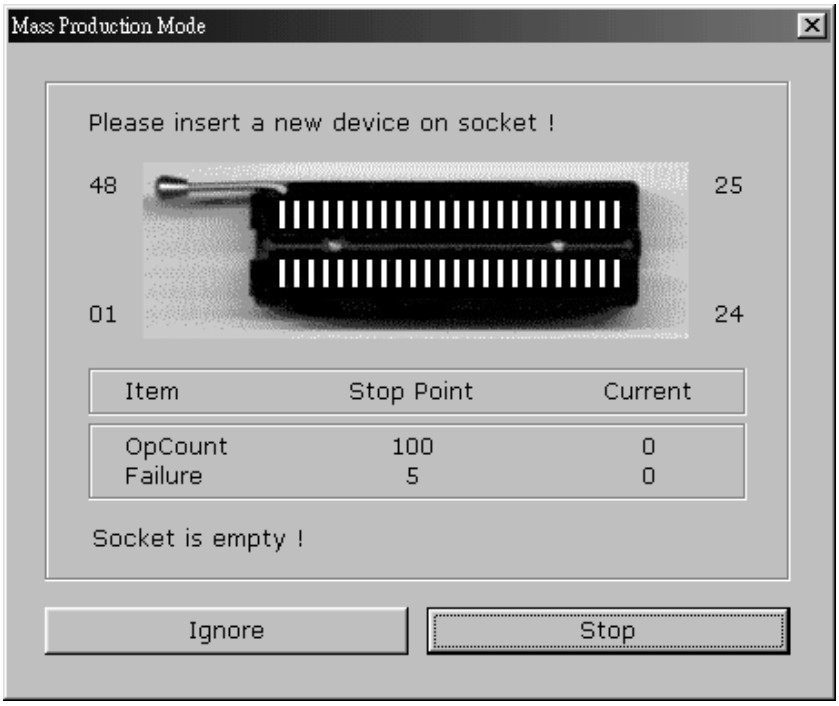


Figure 4.2 mass production mode screen

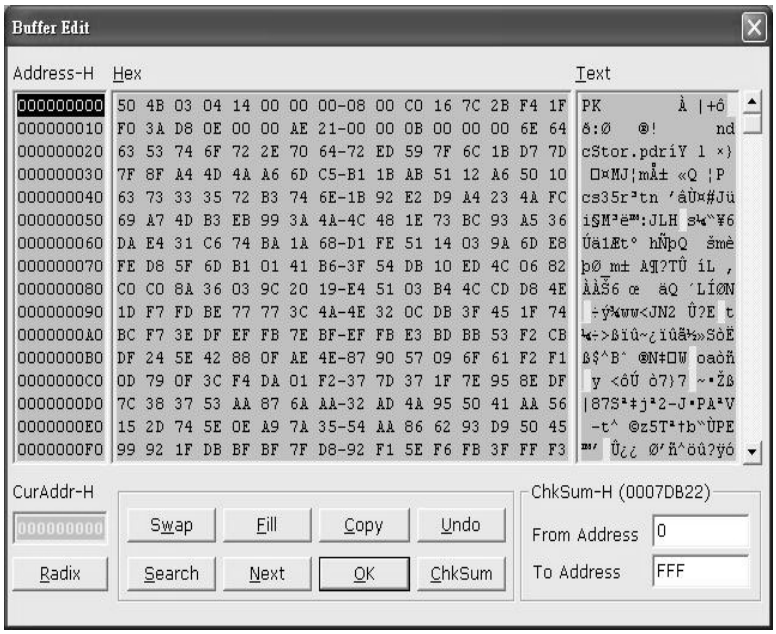
Editing the Buffer (memory device)

Menu *Device / Edit*

Hot key *Alt-E*

This function is used to edit the memory buffer. The memory buffer contains the last file downloaded from disk into memory. If no file has been downloaded from disk into memory since the LABTOOL-48UXP was switched on, the memory buffer will contain “garbage” or last time contents when exit the software.

The screen that is displayed is dependent on the type of device that is currently active.



Radix

This button controls the display of the memory address in Hex/Decimal format. If the address is currently displayed in decimal format, clicking this button will convert and display the address in Hex.

Swap

This allow the user to swap the buffer contents of high byte and low byte, the default of word width is 1, user can change the word with from 1/2/3/4 etc, following is the example of the original file and the result after swap with different word width.

Original file

01 23 45 67 89 AB CD EF after swap with word width 2.

23 01 67 45 AB 89 EF CD

Original file

01 23 45 67 89 AB CD EF after swap with word width 3.

45 23 01 AB 89 67 FF EF

Original file

01 23 45 67 89 AB CD EF after swap with word width 4.

67 45 23 01 EF CD AB 89

Fill

This option is used to fill a block of memory with a specified value. It needs the starting address, the ending address and the value to be copied into this block of memory.

Copy

This function copies a block in memory to a new address. It requires the starting address, the ending address and the address the block must be copied to.

Search

This function searches for a specified ″search-string″. The

search string can be text code or hex code, it can search forward from cursor position or backward from cursor position.

Next

This commend is to find the next string that fit the search string in the buffer.

Undo

As you make changes to the memory buffer, the changes on the current page are highlighted. If you choose this option, it will reverse all changes made to the highlighted areas.

As soon as the changed memory positions move off the screen, or get deselected by another command, the Undo command will not undo the changes.

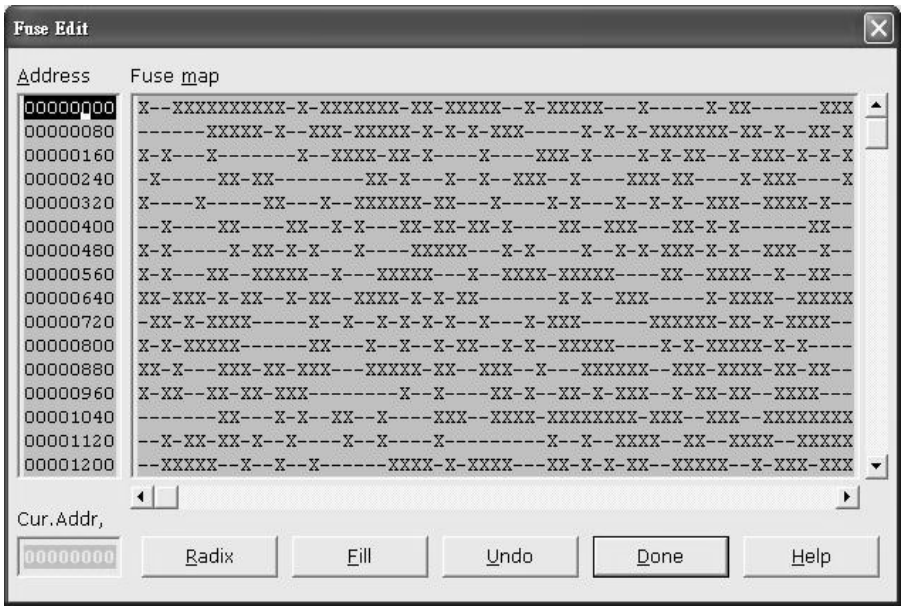
Check Sum

This function allow you to calculated the check sum of the specific range buffer data, enter the From address and To address then click **Check Sum,** the check sum will display in the display.

Edit the buffer (logical device only)

When GAL, PALCE and other logical devices are selected as active device, the main memory buffer will contain a fuse map instead of hexadecimal value.

The screen will appear as following:



In the mode, “X” refers to blown fuse, and “-“ refers to an intact fuse. The purpose of the buttons is as follows:

Radix

This button control the display of the memory address in Hex/Decimal format, If the address is currently displayed in decimal format, clicking this button will covert and display the address in Hex.

Fill

This option is used to fill a block of memory with fuse value. It needs the starting address, ending address and the value to be copied into this Block of memory.

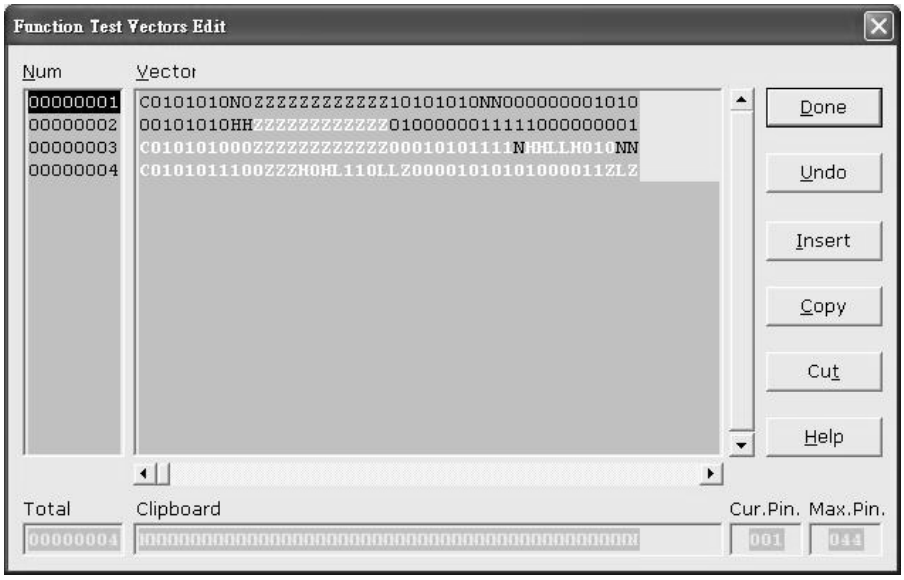
Modify Vector (only available when select PLD)

Menu *Device / Modify vector*

Hot Key *Alt-V*

This command only available for PLD been select as an active

devices, the option is used to modify the vectors that will be used to test a device after the logical chip has been program, this test vector is usually generated by other PLD design tool when the circuit diagram and layout for chip is done. The JEDEC file is downloaded into the LABTOOL-48UXP, and it also contains the test vector that will be used to test the device for correct programming and function. The follow screen will be displayed when enable the Modify Vector:



The purpose of the buttons are as following:

Undo

When the changes are made, the changed areas are highlighted. If you wish to undo this change, just can click this button. It will restore the value prior to the editing done. When a position that is highlight scrolls off the screen, the changed made become permanent and you cannot reverse these changes by clicking this button.

Insert

You can insert a line of vectors by clicking this button. The position where the line will be inserted depends on the position of the cursor. The line will be inserted before the cursor is on. The contents of the “editing clipboard” are shown at the button of the editing screen. The contents of the clipboard will be inserted when this button is click.

Copy

This button copies the line the cursor is on to the editor clipboard.

Cut

This button copies the current line to the clipboard, and also removes it from the memory. Use this button in conjunction with “insert” to move the contents of a line to another position.

Edit the test vector

Vectors are input in standard JEDEC format. The vector buffer is arranged in rows and columns. Following test condition code can be use as a test vector.

0	Driver input low
1	Driver input high
C	Driver input low, high, low (clock)
F	Float input or output
H	Test output high
K	Driver input high, low, high (clock)
L	Test output low

N	Power pin and the outputs not test
X	Output not tested, input default level
Z	Test input/output with high impedance

Blank Checking a Device

Menu *Device / Blank Check*

Hot key *Alt-B*

This option checks if the active device is in its erased state. It will return a message stating “Device not blank!” at the first occurrence of data in the device. The address where the data is found will also be displayed.

Reading a Device

Menu *Device / Read*

Hot key *Alt-R*

This option reads a master chip into the memory buffer for duplication of the master chip. Prior to executing this command, chip must be selected in the software, and then a corresponding chip should inserted into the socket.

Programming a Device

Menu *Device / Program / Auto*

Hot key *Alt-P*

This option programs the active device with the contents of the memory buffer, when the programming is complete, verification will take place. The type of verification depends on the “verification options” set in the options | Operation options menu.

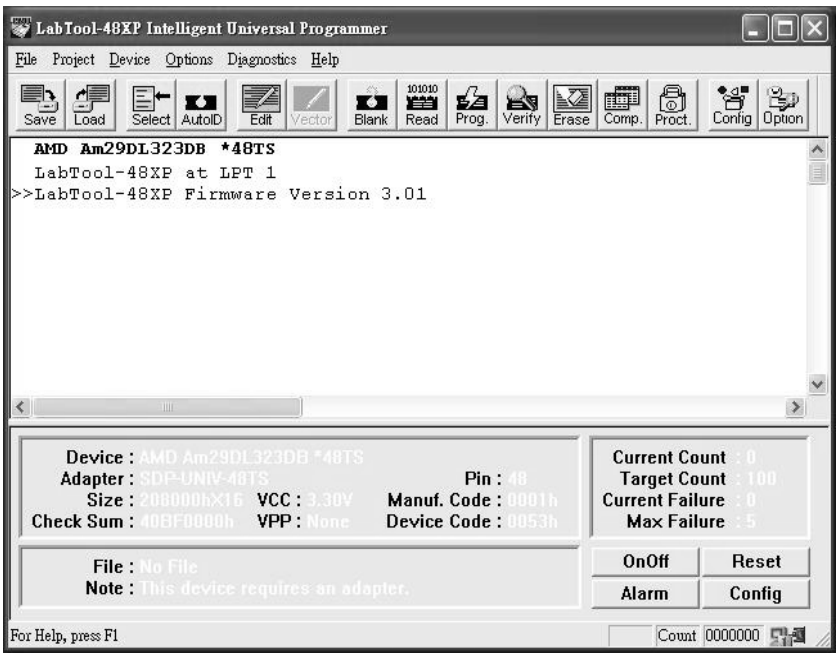


Figure 4-4 Programming progress screen

Verifying a Device

Menu *Device / Verify*

Hot key *Alt- V*

This function compares the contents of the active device with the contents of the memory buffer. It will display an error message and the address if it finds an address where the data differs. It will also abort the process when this happens.

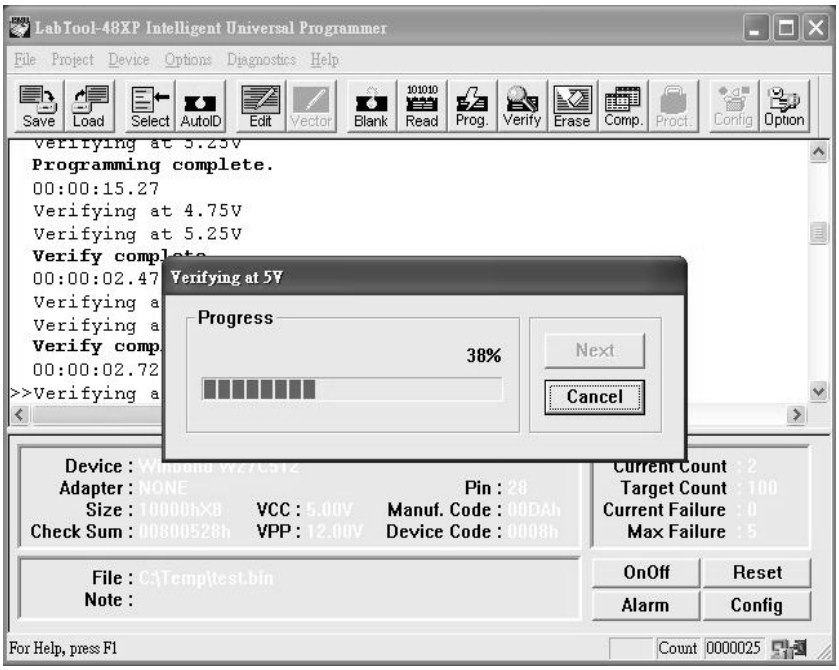


Figure 4-5 Device verification screen

Memory Protect/program configuration

Menu *Device / Memory Protect*

Hot key *ALT-U (PLD only)*

This function is a device-specific command; it appears on the main menu only after chips been selected have this capability.

For example GAL, CEPAL, Microprocessor, and some Flash memory, the function must be configured before use. When properly edit the configuration byte by enable the configuration (ALT-G), set the desired value and status in the buffer then perform this command will program the configuration data of chips, most user will program the main memory first then program the configuration (two step). However in Mass production mode, user can enable the memory protect /program configuration in the device operation menu, after the main memory buffer has been loaded and configuration byte data has set to desired value, perform program will automatically program the main memory and program the

configuration byte in a single command (program or mass production mode program).

Special note for program configuration/ memory protect

Press this key do not means the chip will be memory protect (protect or secure the chip from read), if in device configuration menu the chip do not enable the lock bit or protect enable, this commend really means is to write the configuration into the chip.

Function Test (only available for logic chip)

Menu *Device/ Function test*

Hot key *Alt-T*

This function only available when a logical device has been selected it applied the test vector to the device and compare the outputs with the expected outputs. It tests if the logical chip has been programmed correctly after the chip has been secured and the fuse map is not readable again. It displays a message indicating success or failure, once failure it display the vector number and which pin is not match the expect result.

Before perform memory test, you can modify the vector and set up the options operation screen.

First Enable the function test or function test after secure in options.

Second Select the function test voltage with twice or once.

Third Define the “X” don’t care state in the vector;
High/Low or high impedance

Fourth Select the error display format.

Important notice in function test

To perform function test after program the PLD chip, the input file must contents the test vector or customer has to create the vector by himself, in options of operation menu, function test is enable as default, which means after program the PLD, the LABTOOL-48UXP will perform function test automatically, if no vector in the buffer, the LABTOOL-48UXP will report “no test vector in buffer”, if test vector do not match the behavior of the chip after vector test, error will report with vector no and which pin expect low/high but received high/low. For PLD with PLCC in package (GAL 20V8 as example), the LABTOOL-48UXP software only supports 24 pin in DIP if you need to program a 28 PLCC chip with PLCC adapter, the LABTOOL-48UXP will program the chip but the function test will be failure since the pin can not mismatch with the chip (the chip is 28 pin but it emulated as a 24 pin chip with the adapter), the vector data will not match the device data in pin out.

Erasing a Device

Menu *Device / Erase*

Hot key *Ctrl-F1*

This function is a device-specific command; it appears on the main menu only after electronically erasable chips have been selected. The function can be used to erase a desired memory range from a chip.

Compare

Menu *Device/compare*

Hot Key *Ctrl-F3*

This command only available for memory device, the compare commend is to compare the buffer data with the device data, when

the first data difference founded, the software will stop and report the buffer address and data difference in buffer /device, press next key in the software screen will continue the compare process.

Device Configuration

Menu *Device / Configuration*

Hot key *Alt-G*

This function is a device-specific command for device with configuration register available in the chip, configuration register is use as special function register for the chip, it changes the behavior of the chip such as, OSC type, watch dog enable, code protection, and other functions. To write the configuration register into the chip, edit the configuration menu to your desired value then perform memory protect/ programming configuration.

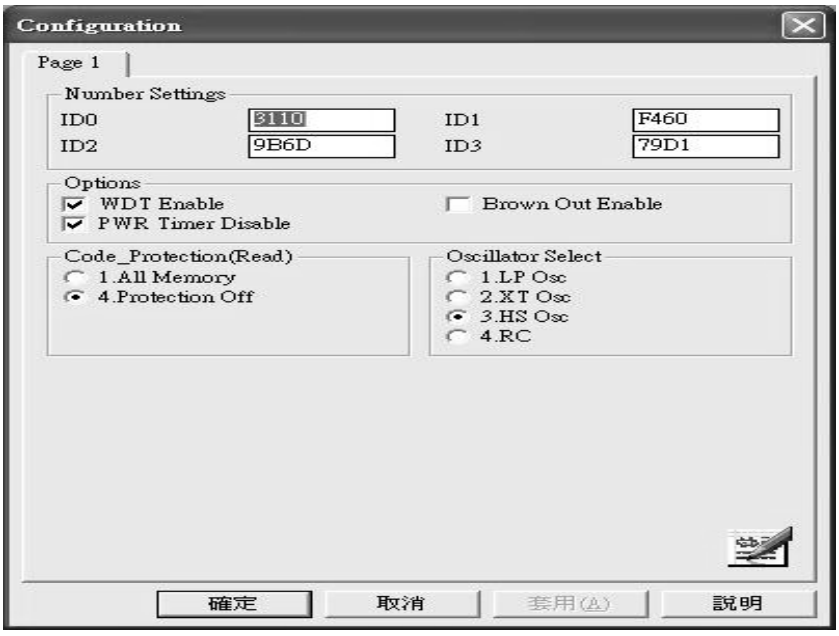


Figure 4-6 Example of device-specific configuration screen

Options

Modify Programming Parameters

Menu *Options / parameters modify*

Hot key *F3*

This function allows a user to modify the programming parameters of the chip being programmed. With the programming parameters for the selected chip appearing on screen, the user activates the “modify algorithm screen” and changes the parameters by moving the cursor to the corresponding field and changing the value to the desired value. If a value entered exceeds the allowable limits for a given parameter, a warning will be flashed, together with allowable limits, after the user attempts to confirm the setting by pressing “OK”.

Warning: Only experienced users should use this option, as it can damage the device if the voltage exceeds the Max tolerance of the device.

As the programming parameters are for temporary use only, they cannot be saved. After you select a new device or exit the LABTOOL-48UXP software the original parameters will automatically be restored.

Device Operation Options

Menu *Options / Operation options*

Hot key *F4*

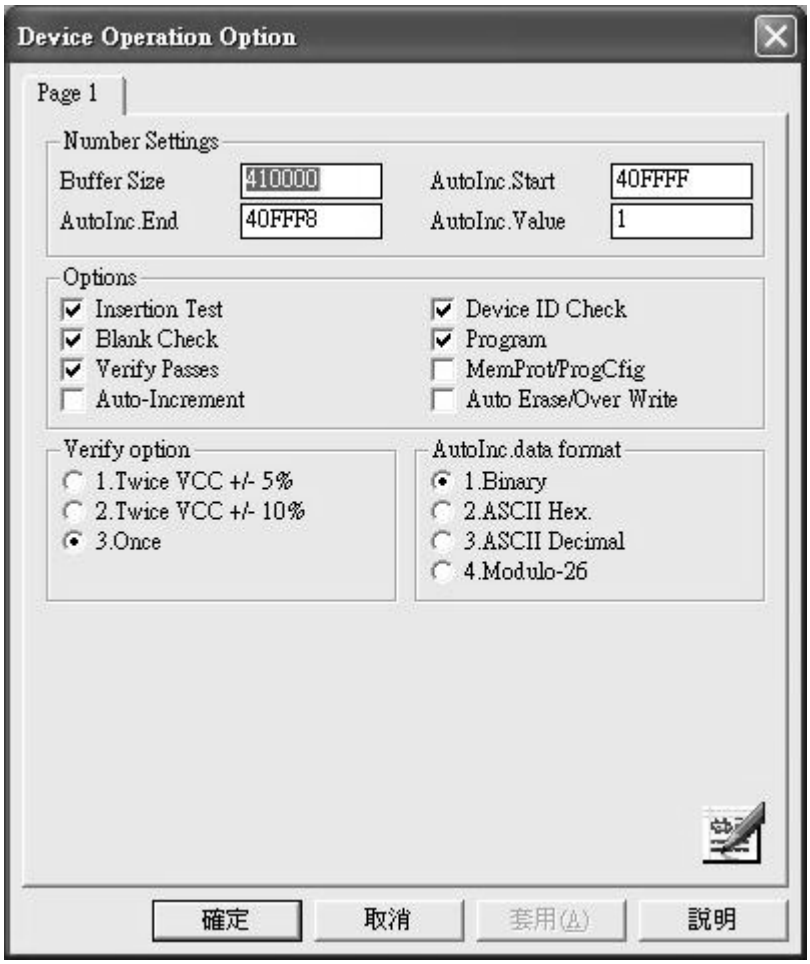


Figure 4-8 Example screen: Device-specific operation options

The following options can be set:

Start address, End address

This is the start and the end address of the edit buffer. If you want to program a certain area of a device, you can change the start and end addresses accordingly.

This option is only displayed when the device can be programmed in this way.

When the end address is calculated, it divides the buffer size by (device-bits/8-bits). A 16-bit device, of which the

buffer size is 80 (Hex), will therefore an end address of 3F.

When selecting a start or an end-address, you should align the buffer on the right boundary: single-word for 8-bit devices, double word for 16-bit devices, etc.

Buffer size

This is the memory buffer in the LABTOOL-48UXP software, once the chip is select, the software open the buffer to match the chip size, user can edit this buffer size to enlarge it size to 256 M bit Max (4000000h) shuffler the file.

Auto increment start/end address

This function allow customer to program memory chips with different serial number on specific location without go to edit the buffer one by one. Specify the serial number location by editing auto increment start address and auto increment end address, edit the initial contents with buffer edit and set the increment value by edit the auto increment value and select the increment format.

Auto increment value

This set each increment value after initial value.

Auto increment data format selection

Binary increment format example

0, 1, 10,11,100, 101,110,111, 1000,1001,1010,1011,1100

ASCII Hex format example

0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F,10,11,12, …

ASCII Decimal Hex format example

0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17, …

Modulo-26 format example

A,B,C,D,E,F, … ,Z,AA,AB,AC, ….

Insertion Test

This option performs the device-insertion check of the chips in the sockets. The insertion check includes poor pin contact, pin count mismatch (the pin count of the chip designated in the software does not match the pin count of the actual chip in the socket), device in wrong position, device upside-down; short-circuit between pins, and chip damage. Result is displayed at the socket′s LED.

Device ID Check

This option performs a device signature and manufacturer match test. With the chip selected and plugged into a socket, LABTOOL-48UXP checks the device ID and displays the results of each check on the LED display.

Verify Passes

Checking this option will instruct the LABTOOL-48UXP to perform device verification with the buffer data when programming is complete. When verify passes is enabled, one of the three verify options (as described below) must be set.

Verifying Options

The following three options are available for verification of data retention following programming:

verify twice with V_{cc} ±5%, verify twice with V_{cc} ± 10% , and verify once with V_{cc}. These options will only be enabled if the ‘Verify passes’ option (see above) is enabled.

(.) Twice V_{cc} ±5%

When this option is selected, the LABTOOL-48UXP will do two verify passes on the device: one using V_{cc}+5%, the other V_{cc}-5%.

Example:
If V_{cc} is 5.0 V, the LABTOOL-48UXP will do one verify pass using a V_{cc} of 4.75 V, and one using a V_{cc} of 5.25 V.

(.)Twice V_{cc} ±10%

When this option is selected, the LABTOOL-48UXP will do two verify passes on the device: one using V_{cc}+10%, the other V_{cc} –10%.

Example:
If V_{cc} is 5.0 V, the LABTOOL-48UXP will do one verify pass using a V_{cc} of 4.5 V, and one using a V_{cc} of 5.5 V.

(.)Once

If this option is selected, the LABTOOL-48UXP will do one verify pass-using V_{cc}.

Blank Check

This option performs a device blank check test before programming. This option can be disabled for brand new chips to save time. For electronically erasable chips, enabling the auto-erase/overwrite option will allow the LATBOOL-48XP to automatically erase the chips if they are not blank initially.

Program configuration/memory protect

This option only applied to device with configuration register or has read protect

function on it, enable this option will automatically program the main buffer into the chip then program the configuration sets up without need to perform memory protect separately. Enable this option not means protect the chip always if the configuration set up menu do not set the lock bit or protect bit enable.

Auto-Erase/Overwrite Option

This option only applies to chip, which is electronically erasable for example Flash memory, Flash based MCU or GAL and so on. It causes LABTOOL-48UXP to automatically perform erase to erase a non-blank chip prior to programming (no warning message “Device is non blank, are you going to program”).

Auto increment (only available to memory device)

This enables the auto increment function that allows user to program different serial number into the chip without editing the buffer one by one, detail set up of auto increment, please reference to the auto increment start address /end address, increment value and increment data format section.

Parallel Port Selection

Menu *options / parallel port*

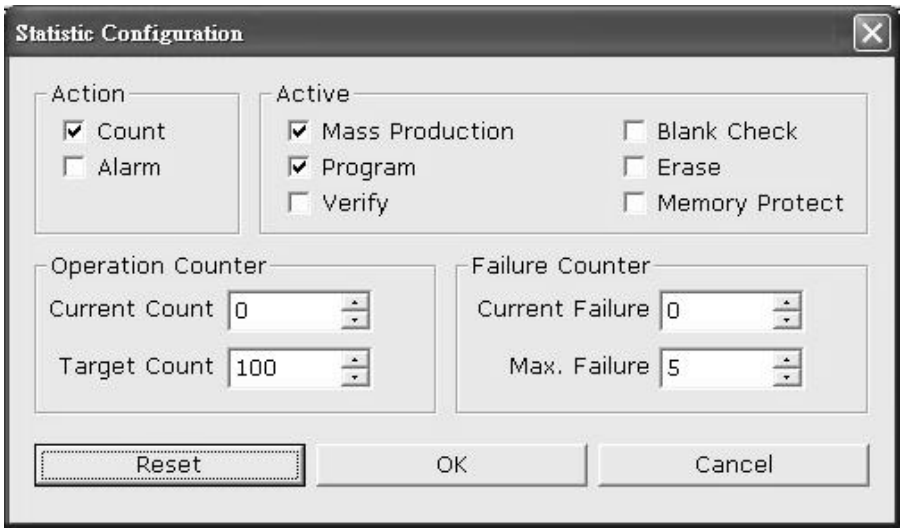
Hotkey *F5*

This commend allows the user to select the parallel port to connect the LABTOOL-48UXP device programmer. Default setting with auto search, after executing the LABTOOL-48UXP software, it auto detect which LPT connects the LABTOOL-48UXP programmer, user can assign the LPT manually by select the LPT position to avoid possible conflict in driver if other LPT device has been attached to the PC.

Statistic

Menu *Options / Statistics*

Hot key *F6*



Action

Enable the counter or alarm when target count or maximum failure counter reach the limit.

Active

Describe what the action you want to count in this statistic function.

Mass production enable:

Count the mass production quantity (chips) into the statistic display.

Program enable:

Count how many program activities into the statistic display.

Verify enable:
Count how many verify operations into the display.

Blank check enable:
Count how many blank check activities into the statistic display

Erase enable:
Count how many erase activities into the statistic display.

Memory protect enable:
Count how many memory protect activities into the statistic display.

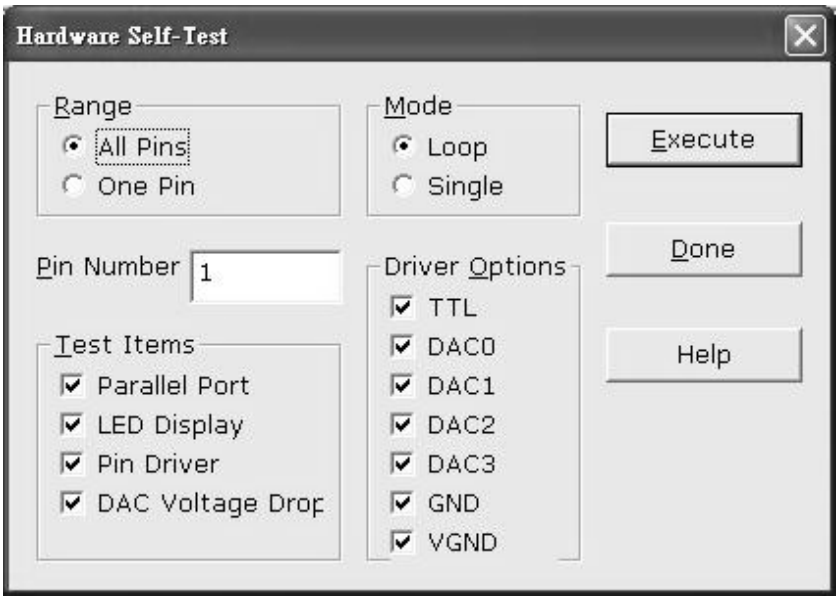
Operation count

Count the total operations and set the target quantities.

Failure count

Count the total failure chips and set the Max failure chips allow. With the operation, exceed the maximum failure count or reach the target count will result alarm or warning message display in the screen (depend on the action set in this page).

Diagnostic



Manufacture recommend the user can run self-test of LABTOOL-48UXP prior to each day's operation. The self-test routine including testing the parallel port, LED display, Pin driver, TTL driver, relay, D/A converter's voltage drop and other parameter, following is the example test result screen.

```
LabTool-48XP at LPT 1
LabTool-48XP Firmware Version 3.01
Hardware self-testing...
Testing parallel port...
     LabTool-48XP at LPT 1
Testing LED...
Test pin driver switching...
Set pin 22 to HIGH and get HIGH at pin 24
Set pin 23 to HIGH and get HIGH at pin 24
Set pin 24 to HIGH and get HIGH at pin 21
Set pin 25 to HIGH and get HIGH at pin 21
Set pin 26 to HIGH and get HIGH at pin 24
Set pin 27 to HIGH and get HIGH at pin 21
Set pin 28 to HIGH and get HIGH at pin 24
Test output volt drop...
DAC0
25 34 36 38 40 44 46
27 27 27 27 27 27 27
DAC1
02 04 06 08 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48
20 20 20 20 20 21 20 20 20 20 21 20 20 20 20 20 20 20 20 20 20 20 20 20
DAC2
01 03 05 07 09 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47
22 22 21 22 22 21 22 21 22 21 22 21 22 22 22 22 22 22 22 22 21 22 22
DAC3
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
28 28 28 28 28 28 28 28 28 28 28 28 28 28 28 28 28 28 28 28 28 28 28 28
>>Hardware self-testing complete !
```

If any of unexpected state display with purple color has been display or any error message report after the self-test, your LABTOOL-48UXP programmer need to return to your distributor for repair.

The DAC (four DAC in LABTOOL-48UXP) test result and its meaning

DAC0

25 34 36 38 40 44 46 (this is the out put pin for DAC 0)

27 27 27 27 27 27 27 this means the DAC0 output level (0-255 in 8 bit DAC) to reach logic high for the input circuit to detect the high.

Rest of DAC 1/2/3 has the same meaning, the out put high level for individual unit, do not affect the performance of the unit.

Help

Help Topics Click this ICON and select the topic will display the on-line help of the topic.

About Click this ICON will display the current LABTOOL-48UXP software revision.

CHAPTER 5

Using Adapters

Adapter Requirements

LABTOOL-48UXP supports universal 48-pin TSOP, 44-pin PLCC, 44 pin QFP, 44 pin TQFP, 44 pin SOP, 40-pin TSOP and 32-pin TSOP pin packages and more. You will need to order an adapter for non-DIL chip packages. Following is the adapters available to fit your need. More new adapters will available when a new chip release. Please contact your local distributor for update adapter available.

User can build the adapter by himself; detail adapter pin swap table can be down load from web:

www.aec.com.tw/products/adapter.pdf

PLCC2020-01	20 pin PLCC adapter for 20 pin PLCC GAL/PAL
PLCC2824-04	28 pin PLCC adapter (NC =1, 8,15,22) for 28 pin PLCC GAL/PAL
PLCC3228-11	32 pin PLCC adapter (NC= 1,12,17,26) for E/EEPROM below 512 K
PLCC3232-11	32 pin PLCC adapter for E/EEPROM with 1M and up
PLCC4440-01	44 pin PLCC adapter (NC= 1,13,23,33) for 44 pin PLCC 16 bit EPROM
PLCC4440-02	44 pin PLCC adapter (NC= 1,12,23,34) for 44 pin PLCC 875X processor
SDP-UNIV-16/TS	16 pin TSOP universal adapter for 8-16 pin TSOP
SDP-UNIV-16SO	16 pin SOIC (150mil) universal adapter for 8-16 pin SOIC

SDP-UNIV-16SO/170	16 pin SOIC (173 mil) universal adapter 1.27m pitch
SDP-UNIV-20SO/200	20 pin SOIC (207mil) universal adapter for 8-20 pin SOIC
SDP-UNIV-20SO	20 pin SOIC (300mil) universal adapter for 16-20 pin SOIC
SDP-UNIV-28SO/300	28 pin SOIC (300mil) universal adapter for 24-28 pin SOIC
SDP-UNIV-28SS/200	28 pin SSOP universal adapters for 200mil x 0.65mm pitch
SDP-PIC-20SS/200	20pin SSOP universal adapter for PIC MCU 200mil x 0.65mm pitch
SDP-UNIV-24SS/150	24 pin SSOP universal adapter for 150mil x 0.635mm pitch
SDP-UNIV-48SS/300	48 pin SSOP universal adapter for 300mil x 0.635mm pitch
SDP-UNIV-28TS	28 pin TSOP (8mm x 14mm) universal adapter for 28 pin TSOP Flash memory
SDP-UNIV-28TSS/170	28 pin TSSOP (173 mil) universal adapter pitch 0.65mm
SDP-UNIV-32TS	32 pin TSOP (8mm x 20mm) universal adapter for 32 pin TSOP Flash memory
SDP-UNIV-32TS/W	32 pin TSOP (8mm x 14mm) universal adapter for 32 pin TSOP Flash memory
SDP-UNIV-32TQ	32 pin TQFP universal adapter
SDP-UNIV-40TS	40 pin TSOP (10mm x 20mm) universal adapter for 40 pin TSOP Flash memory

SDP-UNIV-40TS/W	40 pin TSOP (10mm x 14mm) universal adapter for 40 pin TSOP Flash memory
SDP-UNIV-40TSS	40 pin TSSOP universal adapter for 40 pin TSSOP Flash memory
SDP-UNIV-44TS	44 pin TSOP universal adapter for Samsung /Toshiba 44pin TSOP NAND Flash memory
SDP-UNIV-44	44 pin PLCC universal adapter
SDP-UNIV-44TQ	44 pin TQFP universal adapter
SDP-UNIV-44PSO	44 pin PSOP universal adapter for 44 pin PSOP Flash memory
SDP-UNIV-44Q	44 pin PQFP universal adapter
SDP-UNIV-48TS	48 pin TSOP (12mm x 20mm) universal adapter for 48 pin TSOP Flash memory
SDP-UNIV-48TS/W	48 pin TSOP (12mm x 14mm) universal adapter for 48 pin TSOP Flash memory
SDP-UNIV-48TSS	48 pin TSSOP (10mm x 14mm) with 0.4mm pitch universal adapter for Flash memory
SDP-UNIV-44C	44 pin PLCC (clamshell socket) universal adapter
SDP-UNIV-42SD	42 pin Shrink DIP universal adapter
SDP-5128-68	68 pin PLCC adapter for ALTERA 5128/A
SDP-7064-68	68 pin PLCC adapter for ALTERA 7064/7096
SDP-5192-84	84 pin PLCC adapter for ALTERA 5192/A
SDP-7064-84	84 pin PLCC adapter for ALTERA 7064/7096
SDP-7128-84	84 pin PLCC adapter for ALTERA 7128/E
SDP-7160-84	84 pin PLCC adapter for ALTERA 7160/E
SDP-7064-100Q	100 pin QFP adapter for ALTERA 7064

SDP-7096-100Q	100 pin QFP adapter for ALTERA 7096
SDP-7128-100Q	100 pin QFP adapter for ALTERA 7128/E
SDP-7160-100Q	100 pin QFP adapter for ALTERA 7160/E
SDP-M120-68	68 pin PLCC adapter for AMD MACH 12X/22X
SDP-M130-84	84 pin PLCC adapter for AMD MACH 13X/23X/435 and M4/128
SDP-M131-100Q	100 pin QFP adapter for AMD MACH 131/231SP
SDP-9572-84	84 pin PLCC adapter for XILINX XC9572
SDP-95108-84	84 pin PLCC adapter for XILINX XC95108
SDP-95108-100Q	100 pin QFP adapter for XILINX XC95108
SDP-6811-52B	52 pin PLCC adapter for Motorola 68 HC11 A1/E9/E1/E2, 68 HC711E9/E20
SDP-908AS-52	52 pin PLCC adapter for Motorola 68HC908AS
SDP-705B-52	52 pin PLCC adapter for Motorola 68705B5/B16/B32
SDP-C530-52	52 pin PLCC adapter for Dallas 87C530
SDP-7552-68	68 pin PLCC adapter for Philips 87C552
SDP-7592-68	68 pin PLCC adapter for Philips 87C592
SDP-11L6-68	68 pin PLCC adapter for Motorola MC68HC711L6
SDP-11F1-68	68 pin PLCC adapter for Motorola 68HC11F1
SDP-196K-68	68 pin PLCC adapter for Intel 87C196KB/KD/KC
SDP-196J-68	68 pin PLCC adapter for Intel 87C196KR/KQ/JR
SDP-320E-68	68 pin PLCC adapter for TI TMS320E25
SDP-C752-68	68 pin PLCC PIC 17C752/6 adapter

SDP-C923-68	68 pin PLCC adapter for Microchip PIC 16C923/924
SDP-11K1-84	84 pin PLCC adapter for Motorola XC68HC11K1/K4
SDP-96MH-84	84 pin PLCC adapter for Intel 87C196MH/MC
SDP-AD816-52Q	52 pin QFP adapter for Analog device AduC812/816 MCU
SDP-705X-64Q	64 pin QFP adapter for Motorola 68HC705X32
SDP-C923-64TQ	64 pin TQFP adapter for PIC 16C923/4
SDP-C508-64Q	64 QFP adapter for Infineon C508-4E
SDP-C515-80Q	80pin QFP adapter for Infineon C515/C505L
SDP-908AZ-64Q	64QFP adapter for Motorola 68HC908AZ60
SDP-1024-68	68 pin PLCC adapter for LATTICE PLSI1024
SDP-1032-84	84 pin PLCC adapter for LATTICE PLSI1032/2064
SDP-i320-48U	48 pin uBGA adapter for Intel 28F320B3/C3, 28F160B3/C3 (0.75mm pitch)
SDP-i320-48VF	48 pin VFBGA adapter for Intel 28F320B3C, 28F320C3C, 28F160C3C
SDP-i640-48VF	48 ball VFBGA adapter for Intel GE28F640C3
SDP-S160-48U	48 pin UBGA adapter for SHARP 28F160BJE
SDP-ST320-48U	48 pin UBGA (0.75mm pitch) adapter for ST28W320CT
LVT-320D18-56U	uBGA adapter for Intel 28F320D18 (1.8Vcc,I/O)
LVT-128W18-56U	56 ball VFBGA adapter for Intel GE28F128W18
LVT-128W30-56U	56 ball VFBGA adapter for Intel GE28F128W30
LVT-128K3-56U	56 ball VFBGA adapter for Intel GE28F128K3

LVT-640W18-56U	uBGA adapter for Intel 28F320/640/128W18 (1.8Vcc, I/O)
LVT-640W30-56U	uBGA adapter for Intel 28F320/640W30 (1.8Vcc, 3V I/O)
LVT-6408W30-80F	80 pin uBGA adapter for Intel 28F6408W18 CSP Flash
SDP-F256-80F	80 ball VFBGA adapter for Intel RD28F256SJ3AM, D28F192SJ3AM, RD28F128SJ3AM
SDP-EBGA-001	72 pin EBGA (1.0mm pitch) adapter for Intel 28F800/160/320F3/C3
SDP-EBGA-002	72 pin Easy BGA (1.0mm pitch) adapter for Intel28F320/640/128J3A
SDP-F1316-64F	72 pin FBGA (0.8mm pitch) adapter for SHARP LRS1306/1316A
SDP-1329-64F	72 pin CSP (8mm x11mm) adapter for SHARP LRS1329/1340/1349/1356
SDP-1331-64F	72 pin CSP (8mm x 11mm) adapter for SHARP LRS1331/37/41/42,LRS1357/58,LRS1362/63/ 64/65
SDP-1826-64F	64 ball FBGA adapter for SHARP LRS1826 and ATMEL AT52BR3244/3248
SDP-3204-64F	72 pin CSP adapter for Intel RD28F1604/RD28F3204
SDP-3208-64F	64 pin uBGA adapter for Intel RD28F3208
SDP-A320-48F	48 pin uBGA adapter for AMD 29DL32X (6x12mm size)

SDP-A320-63F	63 pin uBGA adapter for AMD29DL32X (8x14mm size)
SDP-41DL16-69F	69 ball FBGA adapter for AMD 41DL16xxMCP
SDP-42DL32-73F	73 ball FBGA adapter for AMD 41DL32xxMCP
SDP-ST064-56TS	56 pin TSOP adapter for ST 58LW064A
SDP-F400-56TS	56 pin TSOP adapter for Intel 28F400/28F200
SDP-F160-56SS	56 PIN SSOP adapter for Intel 28F160F3
SDP-F320-56SS	56 PIN SSOP adapter for Intel 28F160/320S3/S5
SDP-BL802-56SS	56 PIN SSOP adapter for AMD29BL802C/1602C
SDP-A160-48F	FBGA adapter for AMD 29LV160 (0.8mm pitch)
SDP-A640-48F	FBGA adapter (0.8mm pitch) adapter for AMD 29DL640D
SDP-A800-48F	FBGA adapter for AMD 29LV800 (0.8mm pitch)
SDP-FU160-46SON	46 SON adapter for Fujitsu 29LV800/160
LVT-ADS323-48TS	1.8V low voltage adapter for AMD 29DS32X (48TSOP)
GDP-1305-48TSS	48 pin TSSOP adapter for SHARP LRS1305
GDP-130X-48TSS	48 pin TSSOP adapter for SHARP LRS 1306/8
GDP-F016-56TS	56 pin TSOP adapter for Intel 28F016/032S3/S5
GDP-F320-56SS	56 pin SSOP adapter for Intel 28F320/640/128J5/J3
GDP-F640-56TS	56 pin TSOP adapter for Intel 28F320/640J5/J3
SDP-3224-100Q	100 pin QFP adapter for STV0680

APPENDIX A

Error Messages

Error Messages

Cold not open file – nnnn!

This file does not exist. You might have typed the wrong filename or you might be logged to a different directory.

Verify the filename and the directory, and change to the correct directory before typing in the filename.

Data file version unmatched!

This message will be displayed one of the data-files of the LABTOOL-48UXP software is of the wrong version.

This error occurs if LABTOOL-48UXP.exe is updated, and the data files not updated. This might happen if the installation procedure did not complete.

Re-install the latest release of the LABTOOL-48UXP software.

Device Code unmatched!

This error message is returned when the LABTOOL-48UXP does a device ID check.

The device code found on the device is not as expected. You might have selected an incorrect device as active device, or the device is an older/newer version than the device supported by the LABTOOL-48UXP. Disable the ID check in device operation option can be a temporary solution to program the chip if the chip ID is missing. Select the correct device as active device.

If the error still occurs, download the latest release of software from our web. If you are sure that the device you are using uses the same programming algorithm as a device that is supported, you can use this device as active device. You can then disable device code checking by setting the Operating Options.

Device inserted backwards or damaged already!

The LABTOOL-48UXP detected that the device has been inserted the wrong way round, or that the device has been damaged.

Verify that the device has been inserted correctly. If not, try another device to verify that you are using the correct algorithm etc. to program the device.

Device inserted upwards %d slot(s)!

The LABTOOL-48UXP has detected that the device has been inserted incorrectly. Remove the device and insert it correctly.

Device insertion error or damaged already!

The LABTOOL-48UXP detected a device in socket, but several pins do not respond as expected (poor contact). This indicates that a device has been inserted incorrectly or that the device has been damaged. Verify that the device has been inserted correctly. If not, try another device to verify that you are using the correct algorithm etc. to program the device.

File write error!

The LABTOOL-48UXP detected an error when writing a file to disk.

Check that there is enough space on the disk to hold the file. Also check that the disk is not write-protected.

This might happen on a network if you are a user that does not have rights to the directory you want to save the file to. Use another directory or disk.

Function code has not been initialized yet!

This message indicates that the data file is corrupt. Suggest re-install the LABTOOL-48UXP software and remove all the

LABTOOL-48UXP old file in your disk before installation.

LABTOOL-48UXP not found!

The LABTOOL-48UXP software does not detect the LABTOOL-48UXP on of the parallel ports, or the LABTOOL-48UXP may be failure and need to repair.

Make sure the power on the LABTOOL-48UXP is on. Also check the parallel connection between the PC and the LABTOOL-48UXP. If the LABTOOL-48UXP shares the parallel port with another device, remove the other device or move the LABTOOL-48UXP to its own port.

LABTOOL-48UXP power off or disconnected from PC!

The LABTOOL-48UXP software does not detect the LABTOOL-48UXP on one of the parallel ports.

Make sure the power on the LABTOOL-48UXP is on. Also check the parallel connection between the PC and the LABTOOL-48UXP. If the LABTOOL-48UXP shares the parallel port with another device, remove the other device or move the LABTOOL-48UXP to its own port.

MOS Technology hex file can be 64KB maximum!

This error is displayed when you want to save the buffer to a disk file, and the buffer is bigger than 64KB.

The buffer can still be saved to disk, but only the first 64 KB will be saved. The rest will be lost. Choose another file format if you need to save the whole buffer.

Manufacturer's Code unmatched!

This error message is returned when the LABTOOL-48UXP does a device ID check.

The device code found on the device is not as expected. You might have selected an incorrect device as active device, or the device is an older/newer version than the device supported by the LABTOOL-48UXP.

Select the correct device as active device. If the error still occurs, download the latest release of software from our web. If you are sure that the device you are using uses the same programming algorithm as a device that is supported, you can use device as active device. You can then disable device code checking by setting the *Operating Options.*

No device on socket!

The LABTOOL-48UXP does not detect a device in the socket.

The inserted device may be damaged. Replace it with a similar device and try again.

No test version in the buffer!

The memory buffer does not contain any test vectors. When the LABTOOL-48UXP tries to verify/function test a PLD, is displays this message.

Download a file that contains test vectors before doing a function test. Test vectors are usually included in JEDEC files.

Not enough memory available to complete operation!

There isn’t enough memory available to complete the requested operation. Free some memory and retry the operation.

Over current detected!

A current higher than expected was found. This might indicate that the device has been damaged or is short-circuit.

Check the socket or replace the device.

Poor contact at pin %s!

The LABTOOL-48UXP does an insertion test before programming/erasing etc. any device.

This message indicates that the socket may be dirty, the device may have been damaged etc. Clean the socket or replace the device with another.

Record checksum/length error!

Usually this error indicates that a wrong file format has been selected. It could also indicate that the input file has a record that has been corrupted.

Selected the correct file format, or obtain a new copy of the input file.

Tektronic hex file can be 64KB maximum!

This error is displayed when you want to save the buffer to a disk file, and the buffer is bigger than 64KB.

The buffer can still be saved to disk, but only the first 64KB will be saved. The rest will be lost.

Choose another file format if you need to save the whole buffer.

The pin number of test vectors in the buffer unmatched!

This message indicates that the test vectors in the buffer indicate a different number of pins than actually found on the device.

This is caused when the wrong device is selected as active device, or the wrong file with test vectors is loaded into memory.

This error is also caused when an adapter is required for devices with more than 48-pins. The test vectors try to drive the pins directly, and this causes an error. Make sure that the file and device

correspond, and do not use test vectors on devices that need adapters.

The system is in demo mode!

The LABTOOL-48UXP was not found when the software was started up, and went into “Demo mode”. You can still run the program (some of it) but you cannot execute any hardware functions. Your LABTOOL-48UXP hardware may be failure and need to repair.

This function is not supported in demo mode!

The LABTOOL-48UXP was not found when the software was started up, and went into “Demo mode”. This function is not supported in Demo Mode.

Time-out error!

The LABTOOL-48UXP has not responded to a request for a long time. This error may also happen when perform erase a flash memory chip, when the chip can not erase successfully within the time period, this message will display, it means your chip can not erase any more, change a new chip.

Unexpected code/data/end-of-file/run-time instruction reached!

The input file is corrupt or of the wrong format.

User break!

This message is displayed whenever you “cancel” an operation.

Wrong file format or file is corrupt!

An input file with the wrong format was selected. Selected the right format for the input file.