BootCartMODs:EliminateTheNeedForCracks
ByMrEx

TableofContents

1.0 Overview

Thepurposeofthisdocumentistodiscus sbootcarts,andpresentmodificationsthatwilleliminatethe needforcracks,andeliminatetheneedtohavemanydifferentbootcarts.Iwillassumethatyouhave someexperiencewithsoldering.Ifnot,youshouldstillbeabletodothesemodsifyo ureadthisdoc carefully,andtakeyourtime.Ihaveincludedpicturestohelpyoualongtheway.Ihavealsoincluded documentationonhowtomakeyourDS1"self -booting"withallbootchips.IfyouhavenoideawhatI'm talkingabout,keepreadingan dhopefullyyouwillunderstand.Allmodsareconfirmedworkingwith v64jr/e64.HopefullyIwillhavemoreinfoforZ64ownersinaweekorso.CD64ownerswillhavetotest thesemodsonyourown.Allmodificationsareatyourownrisk.Iwillnotbe responsibleforanyone fuckinguptheirN64'sorbackupunits.Havefun.Ifyouhaveanyquestions,emailthemto n64mods@yahoo.com

2.0 QuickBootCartTutorial

Therestillseemstobealotofpostsontheforumsaboutwhatbootcartstouseoncertain roms.There areonlyafewthingsyouneedtoknowtomakeyouamasterofthebootcartscene.Firstofallyouneed toknowwhatabootcartis.AbootcartisANYN64cartridge.Next,youneedtoknowthepurposeofa bootcart.Thebootcartaccom plishes2things:

1) Bootstheromviathebootchiplocatedonthebootcart.
2) Savesthegameiftheromuses"on -board"saves.

Nowyouneedtoknowallthedifferentbootchips.Onceagain,thebootchipisanactualchipthatis solderedonthecartridge board.Eachromrequiresoneofthefollowingbootchips:
- 6101(OnlyusedintheStarfoxcart,soyoudon'tneedthischip.)
- 6102
- 7102(OnlyusedintheLylatWars(JAPStarfox)cart,soyoudon'tneedthischip.)
- 6103
- 6105
- 6106

Hereisthelistofall the"on -board"savetypes:
- 4kEEPROM
- 16kEEPROM
- SRAM
- FLASH

So,basically,allyouneedtoknowisthetypeofbootchiptheromrequires,andthetypeofsavethe romrequires(Iftheromutilizescontrollerpaksaves,thesavetypeonthebootcarddoes notmatter,unless theromusesbothcontrollerpaksaveand"onboard"save.).Onceyouhavethisinfo,youcanselectthe

properbootcart.Forexample,ifyouwanttoplayRidgeRacer64,whichusesa6102bootchipand16k EEPROMsavetype,youwould   needtouseStarWarsEpisode1Racerasthebootcart,sinceitalsousesa 6102bootchipanda16kEEPROMsavetype.Foralistofallgamesdetailingtheirbootchipandsave chip,goto: http://n64jr.multimania.com/pub/n64jr/orcheckwww.dextrose.com.

Theproblemmostpeoplerunintoistheydonothaveallthedifferentbootcartstheyneedtoboot/save alltheromstheywanttoplay.Also,somegamesgetreleasedwithanewcombinationofbo   ot/savechips, andthereisn'tabootcarttosupportit.MickeySpeedwayisaperfectexampleofthis.It'sa6105   -boot chip,with4kEEPROM.There'snoothergamethatusesthiscombination.Cracksarecreatedtoplay gamesthathavestrangecombinat   ionsofboot/savechips.IprefernottousecracksbecauseIdon'tliketo waittoplayanewgame,andsometimesthecracksarenottested,andthegamecrasheswhileplaying. ThereareafewcracksthatareprettysweetsuchastheFLASHcracksfrom   Dextrose.Thesecracksallow youtosavethefullFLASHtoaDS1,whichcanthenbebackeduptoPC.

Thereisasolutiontoallthepainsofbootcartsandcracks.Thisisaddressedinthefollowingsections.

3.0 ItemsNeeded

Hereyouwillfindalistof   itemstoperformthemodsinthenexttwosections.Youdon'tneedall theseitems,butyouwontbeabletoperformallthemods,orwillhavesomedifficultyifyoudon'thaveall itemslistedbelow.

1) De-solderingIron.(Youwillneedthistoremoveth   ebootchipsfromthecarts.Belowispicture oftheoneIuse.Itcost$9.99atRadioShack.Youcanalsousede   -solderingwire.I'venever usedde -solderingwire,butIcanguaranteeit'snotaseasytouseasthede   -solderingiron.The wirerunsab out$3.00aroll.)

2) SolderingIron
3) Flux.(Youcangetbywithoutthis,butitmakessolderingthesocketsmucheasier.)
4) Hotgluegun.(Onlyneededforthe"Self   -bootingDS1"mod.)
5) Verythinwire.(Onlyneededforthe"Self   -bootingDS1 "mod.)
6) Four16 -pinICsockets.
7) Three8 -pinICsockets
8) Cartridgewith6102 -bootchip.
9) Cartridgewith6103 -bootchip.
10) Cartridgewith6105 -bootchip.
11) Cartridgewith6106 -bootchip.
12) Cartridgewith4kEEPROM.
13) Cartridgewith16kEEPROM.
14) CartridgewithSRAM.

15) CartridgewithFLASH.

4.0 <u>CartMODInstructions</u>

    Beforegettingstartedmakesureyouknowwhatbootchipsandsavetypesareinyourcartridges.This willhelpoptimizeyourworktime.Ifyoudon'tknowwhattypesofchipsareinyourcartridges,goto: <u>http://n64jr.multimania.com/pub/n64jr/</u>orgotowww.dextrose.com.IfyouhavethecartridgesI recommendforeachmod,youshouldonlyhavetotakeapart4cartridges.Evenifyoudon't,you shouldn'th avetotakeapartmorethan6.Butitwillbewellworthit.Ifyouwantmorethanoneofeach bootchip(recommended,butnotnecessary)youwillneedtotakeapartmore.

1) Takeapartacartridgethatuses4kEEPROM.IrecommendDiddyKongRacing(6103/   4k EEPROM)
2) RemovethePCB.(The **front**ofthePCBisthesidethathasIC's(chips).The   **back**istheside withnoIC's.)
3) Remove(de -solder)the16 -pinbootchip.Dothisbyusingthede   -solderingirontosuckoutthe solderfromeachpinfromthefrontsi   deofthePCB.
4) Removethe8 -pin4kEEPROM.Dothisbyusingthede   -solderingirontosuckoutthesolder fromeachpinfromthefrontofthePCB.

    Belowisapictureofthe   **front**ofthePCBwiththebootchipand4kEEPROMremoved.Thered boxiswheret he16 -pinbootchipwaslocated.Theblueboxiswherethe8   -pin4kEEPROMwas located.Theyellowarrowsarepointingtothelocationofpin1.Thebootchipstampshouldlook somethinglikethis:CIC -NU S 1602.Thelast4digitswillbethebootchip   typeasexplainedin the"QuickBootCartTutorial."Theremaybean"A"afterthebootchipnumber.Ifthereis, don'tworryaboutit;theyworkthesameasthechipswithoutan"A."The4kEEPROMstamp shouldlooksomethinglikethis:BU9850638H22.
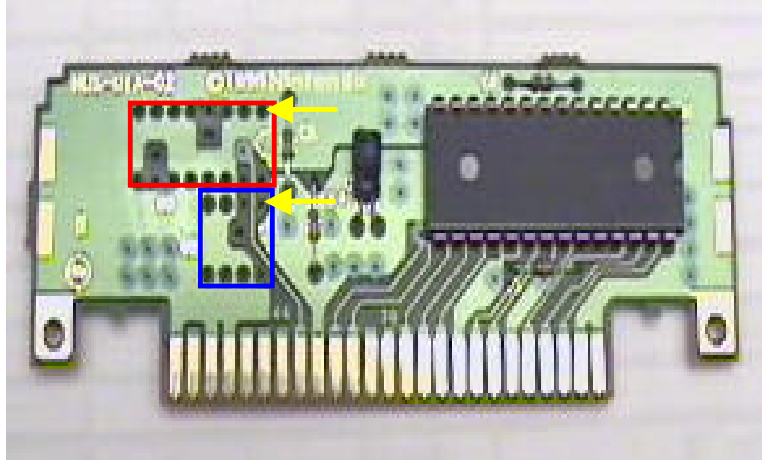

    Belowarepicturesofsomebootchips(left)and4k/16ksavechips(right).
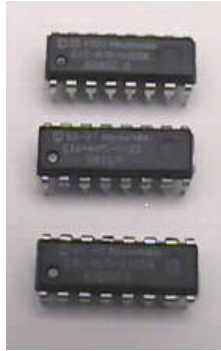
5) Insert a 16-pin socket where the boot chip was, and solder it from the back of the PCB. This is where you should use the flux. Brush some flux on each pin of the socket. This will make it much easier to solder. The PCB should look like the picture below when you're done. Make sure the notched end of the 16-pin socket is where the yellow arrow is pointing.
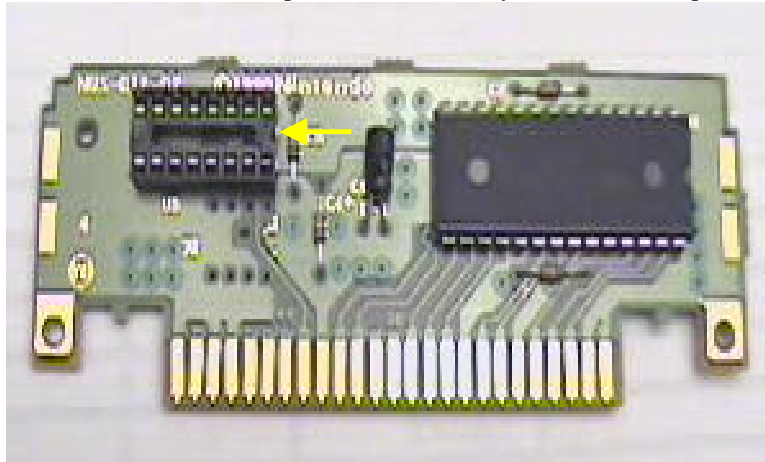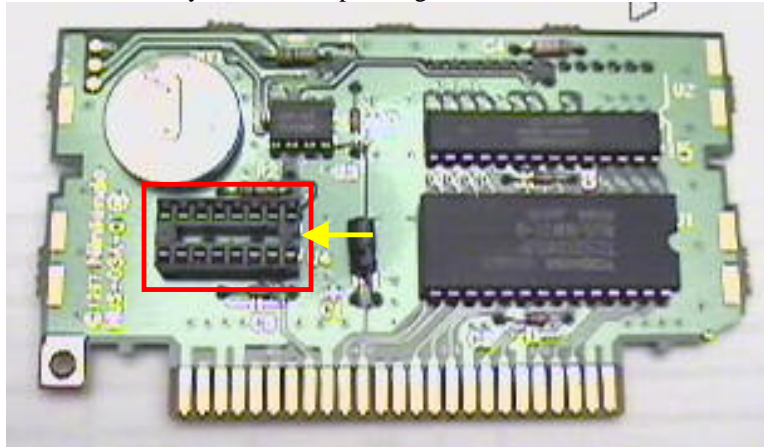

6) Insert an 8-pin socket where the 4k EEPROM was, and solder it from the back of the PCB. The PCB should look like the picture below when you're done. Make sure the notched end of the 8-pin socket is where the yellow arrow is pointing.
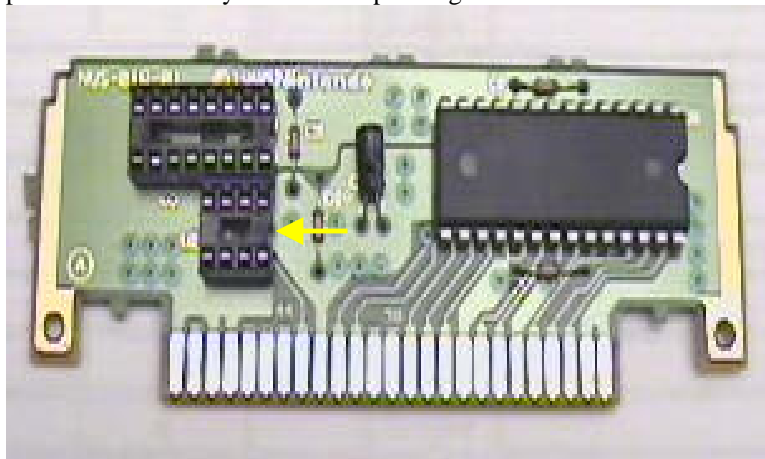

7) Now take apart a cartridge that uses a 16k EEPROM and preferably a different boot chip than the one you removed from the first cartridge. I recommend Cruzin' the World (6106/16k EEPROM). Remove (de-solder) the boot chip and 16k EEPROM. Now you have another boot chip, and a 16k

EEPROM. You can either install the 16 and 8 pin sockets on the PCB you just removed the chips from, or put it away for safekeeping.

8) That's it for the first mod! Now you have a bootcart capable of booting ANY roms that require 4k or 16k EEPROM, without a crack. Just plug in the required bootchip and savechip and your ready to play. Examples would be:

    a) Plug in a 6105 and a 4k EEPROM and you can boot Mickey Speedway without a crack.
    b) Plug in a 6105 and a 16k EEPROM and you can boot Banjo Tooie, Conker's Bad Fur Day, Donkey Kong 64 and more. All without a crack.
    c) Plug in a 6103 and a 16k EEPROM and you can boot Excitebike 64 without a crack.
    d) I think you get the idea. As you can see, with this method, there is no need to crack any roms that require 4k/16k EEPROM. (I have noticed that with DK64, when you turn on the N64, you have to hit reset for the game to start. I haven't noticed this with any other game.)

9) Now take apart a cartridge that uses SRAM. I recommend WCW Revenge (6102/SRAM).
10) Remove the PCB.
11) Remove (de-solder) the 16-pin bootchip.
12) Insert a 16-pin socket where the bootchip was, and solder it from the back of the PCB. The PCB should look like the picture below when you're done. Make sure the notched end of the 16-pin socket is where the yellow arrow is pointing.

13) Now you have a bootcart capable of booting any rom that requires SRAM. Just plug in the required bootchip and your ready to play with no cracks.
14) Now take apart a bootcart with FLASH. I recommend Jet Force Gemini (6105/FLASH).
15) Remove the PCB
16) Remove (de-solder) the 16-pin bootchip.
17) Insert a 16-pin socket where the bootchip was, and solder it from the back of the PCB. The PCB should look like the picture below when you're done. Make sure the notched end of the 16-pin socket is where the yellow arrow is pointing.
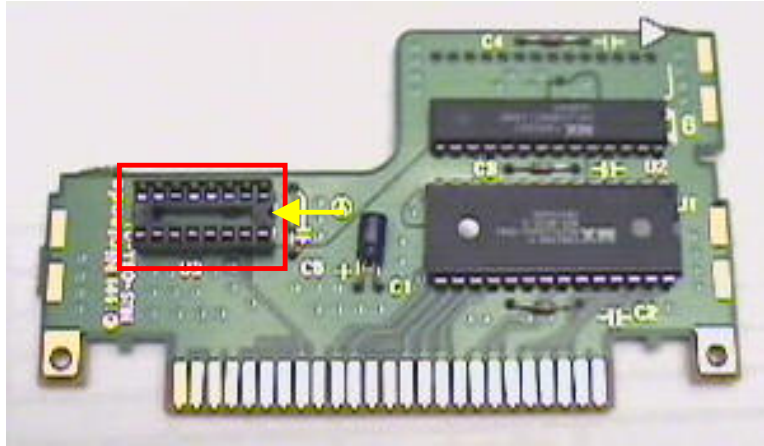
18) NowyouhaveabootcartcapableofplayinganyromthatrequiresFLASH.Justpluginthe requiredbootchipandyourreadytoplaywithnocracks.
19) Nowlookatthebootchipsyouremovedfromthe4PCB's.Takenoteofwhattypeofbootchip theyare.Nowdeterminewhatotherbootchipsyouneed,andtakeapartthecartridgesthat containthosebootchipsandremove(de   -solder)themfromthePCB.Ifthecartridgeshave4k/16k EEPROM,removethemaswell.

Notes:

**Afterremovingthebootchipsandsavechips,takeyoursolderingironandrunitdowneachlegofthe chiptosmooththemout.Ifyoudon'tdothis,thechipswillnotslidesmoothlyin   anoutofthesockets.

**Makesureyouinsertthebootchipand4k/16kEEPROMchipintothesocketscorrectly.Everychiphas a"notched"side.Therewillbeeitheranotchorasmallcirclestampedonthatsideofthechip.Insertthe chipsotheno tchonthechipislinesupwiththenotchonthesocket.

**ThesavefromaFLASHbootcartcannotbetransferredtoPC.ThisiswhyIlikethecracksthatsave theFLASHtoSRAM.ThenIcantransfertheSRAMtomyPC.IbackupallmysavestoPC(exc   ept flash.Thereisn'tautilitytobackupflashtoPCyet.

**WhenusingacrackedromthatsavesFLASHtoSRAM,andyouwanttheentireFLASHtobesavedto SRAM,youmustuseaDS1.AnSRAMbootcartcanonlysavepartoftheFLASH,whichmeansgames likeZelda:Majora'sMaskcanonlyusethe1   [st]savespot.ThisiswhyIcreatedtheSelf   -BootingDS1mod.

**Ifyournotsurewhatbootchipsyouneed,lookatthebootchiplistinthe"QuickBootCartTutorial" sectionofthisdocument.

5.0 SelfBootDS1

IhadanextraDS1lyingaround,andthoughtIwouldtestatheoryIhad.Well,thetheoryworked. ThismodwillallowyoutouseyourDS1withoutabootcart.ItwillalsoallowtheDS1tobootanyrom (aslongasyouhavetherequiredbootchip).

1) TakeapartyourDS1
2) Takeasmalldrillanddrill16holeslikeinthepicturebelow.Theholesmustmatchupwiththe pinsona16 -pinsocket.
3)

4) Solder very thin wire to the DS1 PCB first. Do not solder any wires to the socket until you   read
step 5.

Pin1

Socket to PCB (front)

Pin1

Socket to PCB (back)
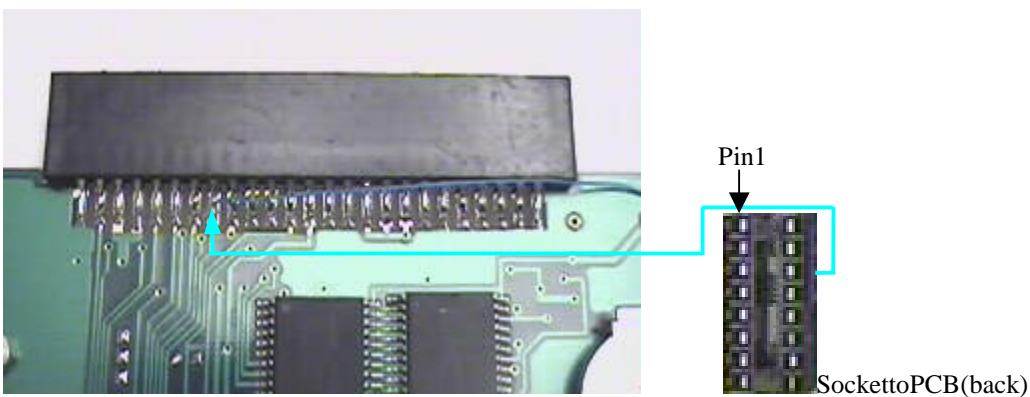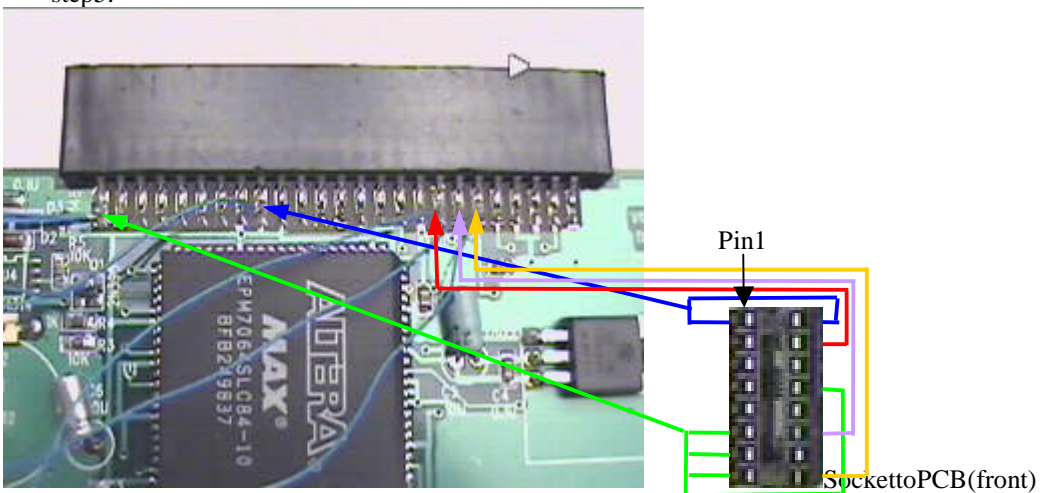
5) Once you've soldered the wire to the PCB, run the wire through the holes   you drilled in the DS1
cover and solder them to the 16   -pin socket.
6) Now put a dab of hot glue where the blue box is in the picture below.

7) Pushthesocketdownintotheholesandholdittightlyuntilthegluedries.
8) NowputtheDS1ba   cktogetherandyourdone!

-ThisworksgreatwiththeromsthatarecrackedtosaveFLASHtoSRAM.TheDS1canhandlethe wholesave,andthecrackedromsallbootoffthe6102   -bootchip.
-Withnobootchipinstalled,theDS1function   sasnormal.
-Eventhoughtheself   -bootDS1canbootanyrom,itcanonlysaveSRAMgames.

6.0 NewsFlash:DS -ALL-IN-1MultiBoot/SaveCart.

CurrentlyIhaveaworkingbetaofaself   -bootDS1modthatsupports6102,6103,6105,6106,4k   -eeprom,16k -eeproma ndSRAM.AllchipsareinternallyinstalledintheDS1,andcontrolledbya dipswitchpanelmountedontheoutsideortheDS1.Thedipswitchpanelismountedinthesamespotthe 16-pinsocketismountedinmyoriginalself   -bootDS1mod.Thesweetestth   ingaboutthismod,isallyou havetodoissetthedipswitchestothecorrectsettingforbootchipandsavetypeanditwillbootandsave anygame.AllcombinationsofbootandsavesarepossibleexceptFLASH,buthopefullyIwillhavethis ironedo utthisweekend).

PropsgoouttomymanChiaforresearchingthechippin   -outs,andcomingupwithmostofthewiring combinations.Ijustgotthismodupandrunninglastnight(04/05/01).Thisisoneofthereason'sit'sstill beta.Theotherreason   isthatwe'restillunsureofacoupleofthepinsonthebootchip,sotheremaybea better/saferwaytowirethebootchips.Ifanyoneknowsifthereisa"chipenable"pinonthebootchip pleasepostsomethinginthedextroseforumtoletusknow.   Asitis,themodseemstoworkfine.Iwillbe playingmyN64alotthisweekendtotestitfurther.

As far as I know, this is the first: self-contained, multi-booting and multi-saving boot cart that actually works, and looks cool. When I confirm it's working with no glitches, I'll release the mod instructions.

Any questions, email them to:
N64mods@yahoo.com