

Sažetak PDF-a: Ugradbeni sustavi - ARM arhitektura

ARM arhitektura

RISC (Reduced Instruction Set Computing)

ugradbenim sustavima. ○

:

1. Osnovne značajke ARM arhitekture FF

6. Kontrola toka izvršavanja

- **Grananje (B - Branch):**
 - Uvjetno grananje: `B (), B Q ()`.
 - Relativno grananje `offset PC`.
- Implementacija IF grananja:

```
CMP r0, r1 ; usporedi a i b
BGE false_block ; ako je a >= b, idi na false blok
MOV r0, #5 ; x = 5
B after_if ; preskoči false blok
false_block: SUB r0, r0, r1 ; x = c - d
after_if:
```

- **Switch-case** `branch table-a`.

7. Implementacija petlji

- For i while petlje koriste uvjetna grananja i base-plus-offset adresiranje.
- Primjer for petlje u C jeziku:

```
for(i=0, f=0; i<N; i++)
    f = f + c[i] * x[i];
```

- **ARM assembly** `LDR, MUL i ADD`.

8. Pozivanje funkcija i rad sa stogom

- **BL (Branch and Link)**.
- Povratak iz funkcije koristi **r14 (LR - Link Register)**:

```
BL funkcija ; poziv funkcije
MOV r15, r14 ; povratak iz funkcije
```

- Ugniježdene funkcije koriste stog za čuvanje povratnih adresa.

Zaključak

O `ARM`, `ARMv7`, `ARMv8`, `ARMv9`, `ARMv10`, `ARMv11`, `ARMv12`, `ARMv13`, `ARMv14`, `ARMv15`, `ARMv16`, `ARMv17`, `ARMv18`, `ARMv19`, `ARMv20`, `ARMv21`, `ARMv22`, `ARMv23`, `ARMv24`, `ARMv25`, `ARMv26`, `ARMv27`, `ARMv28`, `ARMv29`, `ARMv30`, `ARMv31`, `ARMv32`, `ARMv33`, `ARMv34`, `ARMv35`, `ARMv36`, `ARMv37`, `ARMv38`, `ARMv39`, `ARMv40`, `ARMv41`, `ARMv42`, `ARMv43`, `ARMv44`, `ARMv45`, `ARMv46`, `ARMv47`, `ARMv48`, `ARMv49`, `ARMv50`, `ARMv51`, `ARMv52`, `ARMv53`, `ARMv54`, `ARMv55`, `ARMv56`, `ARMv57`, `ARMv58`, `ARMv59`, `ARMv60`, `ARMv61`, `ARMv62`, `ARMv63`, `ARMv64`, `ARMv65`, `ARMv66`, `ARMv67`, `ARMv68`, `ARMv69`, `ARMv70`, `ARMv71`, `ARMv72`, `ARMv73`, `ARMv74`, `ARMv75`, `ARMv76`, `ARMv77`, `ARMv78`, `ARMv79`, `ARMv80`, `ARMv81`, `ARMv82`, `ARMv83`, `ARMv84`, `ARMv85`, `ARMv86`, `ARMv87`, `ARMv88`, `ARMv89`, `ARMv90`, `ARMv91`, `ARMv92`, `ARMv93`, `ARMv94`, `ARMv95`, `ARMv96`, `ARMv97`, `ARMv98`, `ARMv99`, `ARMv100`, `ARMv101`, `ARMv102`, `ARMv103`, `ARMv104`, `ARMv105`, `ARMv106`, `ARMv107`, `ARMv108`, `ARMv109`, `ARMv110`, `ARMv111`, `ARMv112`, `ARMv113`, `ARMv114`, `ARMv115`, `ARMv116`, `ARMv117`, `ARMv118`, `ARMv119`, `ARMv120`, `ARMv121`, `ARMv122`, `ARMv123`, `ARMv124`, `ARMv125`, `ARMv126`, `ARMv127`, `ARMv128`, `ARMv129`, `ARMv130`, `ARMv131`, `ARMv132`, `ARMv133`, `ARMv134`, `ARMv135`, `ARMv136`, `ARMv137`, `ARMv138`, `ARMv139`, `ARMv140`, `ARMv141`, `ARMv142`, `ARMv143`, `ARMv144`, `ARMv145`, `ARMv146`, `ARMv147`, `ARMv148`, `ARMv149`, `ARMv150`, `ARMv151`, `ARMv152`, `ARMv153`, `ARMv154`, `ARMv155`, `ARMv156`, `ARMv157`, `ARMv158`, `ARMv159`, `ARMv160`, `ARMv161`, `ARMv162`, `ARMv163`, `ARMv164`, `ARMv165`, `ARMv166`, `ARMv167`, `ARMv168`, `ARMv169`, `ARMv170`, `ARMv171`, `ARMv172`, `ARMv173`, `ARMv174`, `ARMv175`, `ARMv176`, `ARMv177`, `ARMv178`, `ARMv179`, `ARMv180`, `ARMv181`, `ARMv182`, `ARMv183`, `ARMv184`, `ARMv185`, `ARMv186`, `ARMv187`, `ARMv188`, `ARMv189`, `ARMv190`, `ARMv191`, `ARMv192`, `ARMv193`, `ARMv194`, `ARMv195`, `ARMv196`, `ARMv197`, `ARMv198`, `ARMv199`, `ARMv200`, `ARMv201`, `ARMv202`, `ARMv203`, `ARMv204`, `ARMv205`, `ARMv206`, `ARMv207`, `ARMv208`, `ARMv209`, `ARMv210`, `ARMv211`, `ARMv212`, `ARMv213`, `ARMv214`, `ARMv215`, `ARMv216`, `ARMv217`, `ARMv218`, `ARMv219`, `ARMv220`, `ARMv221`, `ARMv222`, `ARMv223`, `ARMv224`, `ARMv225`, `ARMv226`, `ARMv227`, `ARMv228`, `ARMv229`, `ARMv230`, `ARMv231`, `ARMv232`, `ARMv233`, `ARMv234`, `ARMv235`, `ARMv236`, `ARMv237`, `ARMv238`, `ARMv239`, `ARMv240`, `ARMv241`, `ARMv242`, `ARMv243`, `ARMv244`, `ARMv245`, `ARMv246`, `ARMv247`, `ARMv248`, `ARMv249`, `ARMv250`, `ARMv251`, `ARMv252`, `ARMv253`, `ARMv254`, `ARMv255`, `ARMv256`, `ARMv257`, `ARMv258`, `ARMv259`, `ARMv260`, `ARMv261`, `ARMv262`, `ARMv263`, `ARMv264`, `ARMv265`, `ARMv266`, `ARMv267`, `ARMv268`, `ARMv269`, `ARMv270`, `ARMv271`, `ARMv272`, `ARMv273`, `ARMv274`, `ARMv275`, `ARMv276`, `ARMv277`, `ARMv278`, `ARMv279`, `ARMv280`, `ARMv281`, `ARMv282`, `ARMv283`, `ARMv284`, `ARMv285`, `ARMv286`, `ARMv287`, `ARMv288`, `ARMv289`, `ARMv290`, `ARMv291`, `ARMv292`, `ARMv293`, `ARMv294`, `ARMv295`, `ARMv296`, `ARMv297`, `ARMv298`, `ARMv299`, `ARMv300`, `ARMv301`, `ARMv302`, `ARMv303`, `ARMv304`, `ARMv305`, `ARMv306`, `ARMv307`, `ARMv308`, `ARMv309`, `ARMv310`, `ARMv311`, `ARMv312`, `ARMv313`, `ARMv314`, `ARMv315`, `ARMv316`, `ARMv317`, `ARMv318`, `ARMv319`, `ARMv320`, `ARMv321`, `ARMv322`, `ARMv323`, `ARMv324`, `ARMv325`, `ARMv326`, `ARMv327`, `ARMv328`, `ARMv329`, `ARMv330`, `ARMv331`, `ARMv332`, `ARMv333`, `ARMv334`, `ARMv335`, `ARMv336`, `ARMv337`, `ARMv338`, `ARMv339`, `ARMv340`, `ARMv341`, `ARMv342`, `ARMv343`, `ARMv344`, `ARMv345`, `ARMv346`, `ARMv347`, `ARMv348`, `ARMv349`, `ARMv350`, `ARMv351`, `ARMv352`, `ARMv353`, `ARMv354`, `ARMv355`, `ARMv356`, `ARMv357`, `ARMv358`, `ARMv359`, `ARMv360`, `ARMv361`, `ARMv362`, `ARMv363`, `ARMv364`, `ARMv365`, `ARMv366`, `ARMv367`, `ARMv368`, `ARMv369`, `ARMv370`, `ARMv371`, `ARMv372`, `ARMv373`, `ARMv374`, `ARMv375`, `ARMv376`, `ARMv377`, `ARMv378`, `ARMv379`, `ARMv380`, `ARMv381`, `ARMv382`, `ARMv383`, `ARMv384`, `ARMv385`, `ARMv386`, `ARMv387`, `ARMv388`, `ARMv389`, `ARMv390`, `ARMv391`, `ARMv392`, `ARMv393`, `ARMv394`, `ARMv395`, `ARMv396`, `ARMv397`, `ARMv398`, `ARMv399`, `ARMv400`, `ARMv401`, `ARMv402`, `ARMv403`, `ARMv404`, `ARMv405`, `ARMv406`, `ARMv407`, `ARMv408`, `ARMv409`, `ARMv410`, `ARMv411`, `ARMv412`, `ARMv413`, `ARMv414`, `ARMv415`, `ARMv416`, `ARMv417`, `ARMv418`, `ARMv419`, `ARMv420`, `ARMv421`, `ARMv422`, `ARMv423`, `ARMv424`, `ARMv425`, `ARMv426`, `ARMv427`, `ARMv428`, `ARMv429`, `ARMv430`, `ARMv431`, `ARMv432`, `ARMv433`, `ARMv434`, `ARMv435`, `ARMv436`, `ARMv437`, `ARMv438`, `ARMv439`, `ARMv440`, `ARMv441`, `ARMv442`, `ARMv443`, `ARMv444`, `ARMv445`, `ARMv446`, `ARMv447`, `ARMv448`, `ARMv449`, `ARMv450`, `ARMv451`, `ARMv452`, `ARMv453`, `ARMv454`, `ARMv455`, `ARMv456`, `ARMv457`, `ARMv458`, `ARMv459`, `ARMv460`, `ARMv461`, `ARMv462`, `ARMv463`, `ARMv464`, `ARMv465`, `ARMv466`, `ARMv467`, `ARMv468`, `ARMv469`, `ARMv470`, `ARMv471`, `ARMv472`, `ARMv473`, `ARMv474`, `ARMv475`, `ARMv476`, `ARMv477`, `ARMv478`, `ARMv479`, `ARMv480`, `ARMv481`, `ARMv482`, `ARMv483`, `ARMv484`, `ARMv485`, `ARMv486`, `ARMv487`, `ARMv488`, `ARMv489`, `ARMv490`, `ARMv491`, `ARMv492`, `ARMv493`, `ARMv494`, `ARMv495`, `ARMv496`, `ARMv497`, `ARMv498`, `ARMv499`, `ARMv500`, `ARMv501`, `ARMv502`, `ARMv503`, `ARMv504`, `ARMv505`, `ARMv506`, `ARMv507`, `ARMv508`, `ARMv509`, `ARMv510`, `ARMv511`, `ARMv512`, `ARMv513`, `ARMv514`, `ARMv515`, `ARMv516`, `ARMv517`, `ARMv518`, `ARMv519`, `ARMv520`, `ARMv521`, `ARMv522`, `ARMv523`, `ARMv524`, `ARMv525`, `ARMv526`, `ARMv527`, `ARMv528`, `ARMv529`, `ARMv530`, `ARMv531`, `ARMv532`, `ARMv533`, `ARMv534`, `ARMv535`, `ARMv536`, `ARMv537`, `ARMv538`, `ARMv539`, `ARMv540`, `ARMv541`, `ARMv542`, `ARMv543`, `ARMv544`, `ARMv545`, `ARMv546`, `ARMv547`, `ARMv548`, `ARMv549`, `ARMv550`, `ARMv551`, `ARMv552`, `ARMv553`, `ARMv554`, `ARMv555`, `ARMv556`, `ARMv557`, `ARMv558`, `ARMv559`, `ARMv560`, `ARMv561`, `ARMv562`, `ARMv563`, `ARMv564`, `ARMv565`, `ARMv566`, `ARMv567`, `ARMv568`, `ARMv569`, `ARMv570`, `ARMv571`, `ARMv572`, `ARMv573`, `ARMv574`, `ARMv575`, `ARMv576`, `ARMv577`, `ARMv578`, `ARMv579`, `ARMv580`, `ARMv581`, `ARMv582`, `ARMv583`, `ARMv584`, `ARMv585`, `ARMv586`, `ARMv587`, `ARMv588`, `ARMv589`, `ARMv590`, `ARMv591`, `ARMv592`, `ARMv593`, `ARMv594`, `ARMv595`, `ARMv596`, `ARMv597`, `ARMv598`, `ARMv599`, `ARMv600`, `ARMv601`, `ARMv602`, `ARMv603`, `ARMv604`, `ARMv605`, `ARMv606`, `ARMv607`, `ARMv608`, `ARMv609`, `ARMv610`, `ARMv611`, `ARMv612`, `ARMv613`, `ARMv614`, `ARMv615`, `ARMv616`, `ARMv617`, `ARMv618`, `ARMv619`, `ARMv620`, `ARMv621`, `ARMv622`, `ARMv623`, `ARMv624`, `ARMv625`, `ARMv626`, `ARMv627`, `ARMv628`, `ARMv629`, `ARMv630`, `ARMv631`, `ARMv632`, `ARMv633`, `ARMv634`, `ARMv635`, `ARMv636`, `ARMv637`, `ARMv638`, `ARMv639`, `ARMv640`, `ARMv641`, `ARMv642`, `ARMv643`, `ARMv644`, `ARMv645`, `ARMv646`, `ARMv647`, `ARMv648`, `ARMv649`, `ARMv650`, `ARMv651`, `ARMv652`, `ARMv653`, `ARMv654`, `ARMv655`, `ARMv656`, `ARMv657`, `ARMv658`, `ARMv659`, `ARMv660`, `ARMv661`, `ARMv662`, `ARMv663`, `ARMv664`, `ARMv665`, `ARMv666`, `ARMv667`, `ARMv668`, `ARMv669`, `ARMv670`, `ARMv671`, `ARMv672`, `ARMv673`, `ARMv674`, `ARMv675`, `ARMv676`, `ARMv677`, `ARMv678`, `ARMv679`, `ARMv680`, `ARMv681`, `ARMv682`, `ARMv683`, `ARMv684`, `ARMv685`, `ARMv686`, `ARMv687`, `ARMv688`, `ARMv689`, `ARMv690`, `ARMv691`, `ARMv692`, `ARMv693`, `ARMv694`, `ARMv695`, `ARMv696`, `ARMv697`, `ARMv698`, `ARMv699`, `ARMv700`, `ARMv701`, `ARMv702`, `ARMv703`, `ARMv704`, `ARMv705`, `ARMv706`, `ARMv707`, `ARMv708`, `ARMv709`, `ARMv710`, `ARMv711`, `ARMv712`, `ARMv713`, `ARMv714`, `ARMv715`, `ARMv716`, `ARMv717`, `ARMv718`, `ARMv719`, `ARMv720`, `ARMv721`, `ARMv722`, `ARMv723`, `ARMv724`, `ARMv725`, `ARMv726`, `ARMv727`, `ARMv728`, `ARMv729`, `ARMv730`, `ARMv731`, `ARMv732`, `ARMv733`, `ARMv734`, `ARMv735`, `ARMv736`, `ARMv737`, `ARMv738`, `ARMv739`, `ARMv740`, `ARMv741`, `ARMv742`, `ARMv743`, `ARMv744`, `ARMv745`, `ARMv746`, `ARMv747`, `ARMv748`, `ARMv749`, `ARMv750`, `ARMv751`, `ARMv752`, `ARMv753`, `ARMv754`, `ARMv755`, `ARMv756`, `ARMv757`, `ARMv758`, `ARMv759`, `ARMv760`, `ARMv761`, `ARMv762`, `ARMv763`, `ARMv764`, `ARMv765`, `ARMv766`, `ARMv767`, `ARMv768`, `ARMv769`, `ARMv770`, `ARMv771`, `ARMv772`, `ARMv773`, `ARMv774`, `ARMv775`, `ARMv776`, `ARMv777`, `ARMv778`, `ARMv779`, `ARMv780`, `ARMv781`, `ARMv782`, `ARMv783`, `ARMv784`, `ARMv785`, `ARMv786`, `ARMv787`, `ARMv788`, `ARMv789`, `ARMv790`, `ARMv791`, `ARMv792`, `ARMv793`, `ARMv794`, `ARMv795`, `ARMv796`, `ARMv797`, `ARMv798`, `ARMv799`, `ARMv800`, `ARMv801`, `ARMv802`, `ARMv803`, `ARMv804`, `ARMv805`, `ARMv806`, `ARMv807`, `ARMv808`, `ARMv809`, `ARMv810`, `ARMv811`, `ARMv812`, `ARMv813`, `ARMv814`, `ARMv815`, `ARMv816`, `ARMv817`, `ARMv818`, `ARMv819`, `ARMv820`, `ARMv821`, `ARMv822`, `ARMv823`, `ARMv824`, `ARMv825`, `ARMv826`, `ARMv827`, `ARMv828`, `ARMv829`, `ARMv830`, `ARMv831`, `ARMv832`, `ARMv833`, `ARMv834`, `ARMv835`, `ARMv836`, `ARMv837`, `ARMv838`, `ARMv839`, `ARMv840`, `ARMv841`, `ARMv842`, `ARMv843`, `ARMv844`, `ARMv845`, `ARMv846`, `ARMv847`, `ARMv848`, `ARMv849`, `ARMv850`, `ARMv851`, `ARMv852`, `ARMv853`, `ARMv854`, `ARMv855`, `ARMv856`, `ARMv857`, `ARMv858`, `ARMv859`, `ARMv860`, `ARMv861`, `ARMv862`, `ARMv863`, `ARMv864`, `ARMv865`, `ARMv866`, `ARMv867`, `ARMv868`, `ARMv869`, `ARMv870`, `ARMv871`, `ARMv872`, `ARMv873`, `ARMv874`, `ARMv875`, `ARMv876`, `ARMv877`, `ARMv878`, `ARMv879`, `ARMv880`, `ARMv881`, `ARMv882`, `ARMv883`, `ARMv884`, `ARMv885`, `ARMv886`, `ARMv887`, `ARMv888`, `ARMv889`, `ARMv890`, `ARMv891`, `ARMv892`, `ARMv893`, `ARMv894`, `ARMv895`, `ARMv896`, `ARMv897`, `ARMv898`, `ARMv899`, `ARMv900`, `ARMv901`, `ARMv902`, `ARMv903`, `ARMv904`, `ARMv905`, `ARMv906`, `ARMv907`, `ARMv908`, `ARMv909`, `ARMv910`, `ARMv911`, `ARMv912`, `ARMv913`, `ARMv914`, `ARMv915`, `ARMv916`, `ARMv917`, `ARMv918`, `ARMv919`, `ARMv920`, `ARMv921`, `ARMv922`, `ARMv923`, `ARMv924`, `ARMv925`, `ARMv926`, `ARMv927`, `ARMv928`, `ARMv929`, `ARMv930`, `ARMv931`, `ARMv932`, `ARMv933`, `ARMv934`, `ARMv935`, `ARMv936`, `ARMv937`, `ARMv938`, `ARMv939`, `ARMv940`, `ARMv941`, `ARMv942`, `ARMv943`, `ARMv944`, `ARMv945`, `ARMv946`, `ARMv947`, `ARMv948`, `ARMv949`, `ARMv950`, `ARMv951`, `ARMv952`, `ARMv953`, `ARMv954`, `ARMv955`, `ARMv956`, `ARMv957`, `ARMv958`, `ARMv959`, `ARMv960`, `ARMv961`, `ARMv962`, `ARMv963`, `ARMv964`, `ARMv965`, `ARMv966`, `ARMv967`, `ARMv968`, `ARMv969`, `ARMv970`, `ARMv971`, `ARMv972`, `ARMv973`, `ARMv974`, `ARMv975`, `ARMv976`, `ARMv977`, `ARMv978`, `ARMv979`, `ARMv980`, `ARMv981`, `ARMv982`, `ARMv983`, `ARMv984`, `ARMv985`, `ARMv986`, `ARMv987`, `ARMv988`, `ARMv989`, `ARMv990`, `ARMv991`, `ARMv992`, `ARMv993`, `ARMv994`, `ARMv995`, `ARMv996`, `ARMv997`, `ARMv998`, `ARMv999`, `ARMv1000`, `ARMv1001`, `ARMv1002`, `ARMv1003`, `ARMv1004`, `ARMv1005`, `ARMv1006`, `ARMv1007`, `ARMv1008`, `ARMv1009`, `ARMv1010`, `ARMv1011`, `ARMv1012`, `ARMv1013`, `ARMv1014`, `ARMv1015`, `ARMv1016`, `ARMv1017`, `ARMv1018`, `ARMv1019`, `ARMv1020`, `ARMv1021`, `ARMv1022`, `ARMv1023`, `ARMv1024`, `ARMv1025`, `ARMv1026`, `ARMv1027`, `ARMv1028`, `ARMv1029`, `ARMv1030`, `ARMv1031`, `ARMv1032`, `ARMv1033`, `ARMv1034`, `ARMv1035`, `ARMv1036`, `ARMv1037`, `ARMv1038`, `ARMv1039`, `ARMv1040`, `ARMv1041`, `ARMv1042`, `ARMv1043`, `ARMv1044`, `ARMv1045`, `ARMv1046`, `ARMv1047`, `ARMv1048`, `ARMv1049`, `ARMv1050`, `ARMv1051`, `ARMv1052`, `ARMv1053`, `ARMv1054`, `ARMv1055`, `ARMv1056`

