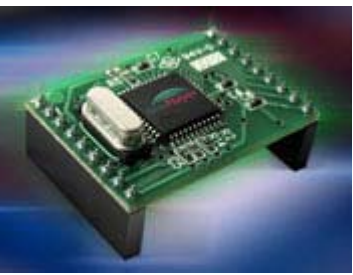


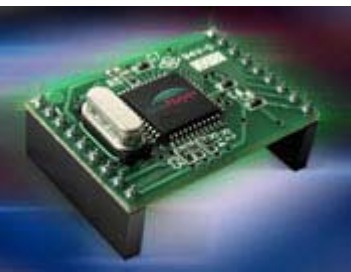
Netværk & elektronik

- Oversigt
 - Ethernet og IP teori
 - Montering af Siteplayer modul
 - Siteplayer teori
 - Siteplayer forbindelse
 - HTML
 - Router (port forwarding!)
 - Projekter



Ethernet

- På Mars er der links til www.siteplayer.com og www.siteplayer.dk (Hvis I skal købe en Siteplayer til jer selv!!)
- Hent SW fra en af de ovenstående links.
- [Ethernet teori v3.ppt](#)



Siteplayer

- Komplet Ethernet web-server på kun 23,5 x 33 mm
- 8 ind-/udgange der kan styres og aflæses fra en web-browser
- Fx 8 relæer, 8 kontakt indgange, fire 8-bit PWM / event tællere, SPI
- Seriel port med hastighed 300-115.200 bits/sek.
- 48K bytes flash ledig til web-sider. Oplad via Ethernet
- 768 bytes til data objekter af typen bit, byte, integer, long og string
- Web-sider redigeres med standard HTML værktøjer
- Statisk eller dynamisk (DHCP) IP adresse
- Understøtter ARP, ICMP, UDP, TCP, DHCP
- Firmware kan opgraderes via Ethernet
- Data input via HTML forms: tekst felter, knapper, links
- Standard 10BaseT Ethernet med automatisk polaritets korrektion
- Kan fjernstyres/aflæses via web-browser, JAVA, C, C++, Visual Basic
- Kræver kun et print m. RJ45 stik og 5V strømforsyning for at komme i gang



Siteplayer blokdiagram

Blok diagram

Funktions diagram

UART SERIAL interface	Objekt processor Interface til UART	Web-server Gemmer web- sider og styrer grafik- / data baserede objekter Modtager data fra browser	Ethernet protokol processor Ethernet og TCP/IP protokol	10BaseT Ethernet Interface
	Objekt RAM 768 bytes til live data objekter Styrer manipulation af web-sider	FLASH web-sider 48Kb til web-sider og konfigurations parametre		Hardware I/O 8 ind-/udgange 4 PWM (8bit) el. event tæller



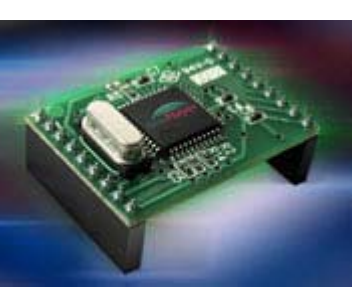
Siteplayer Pin layout



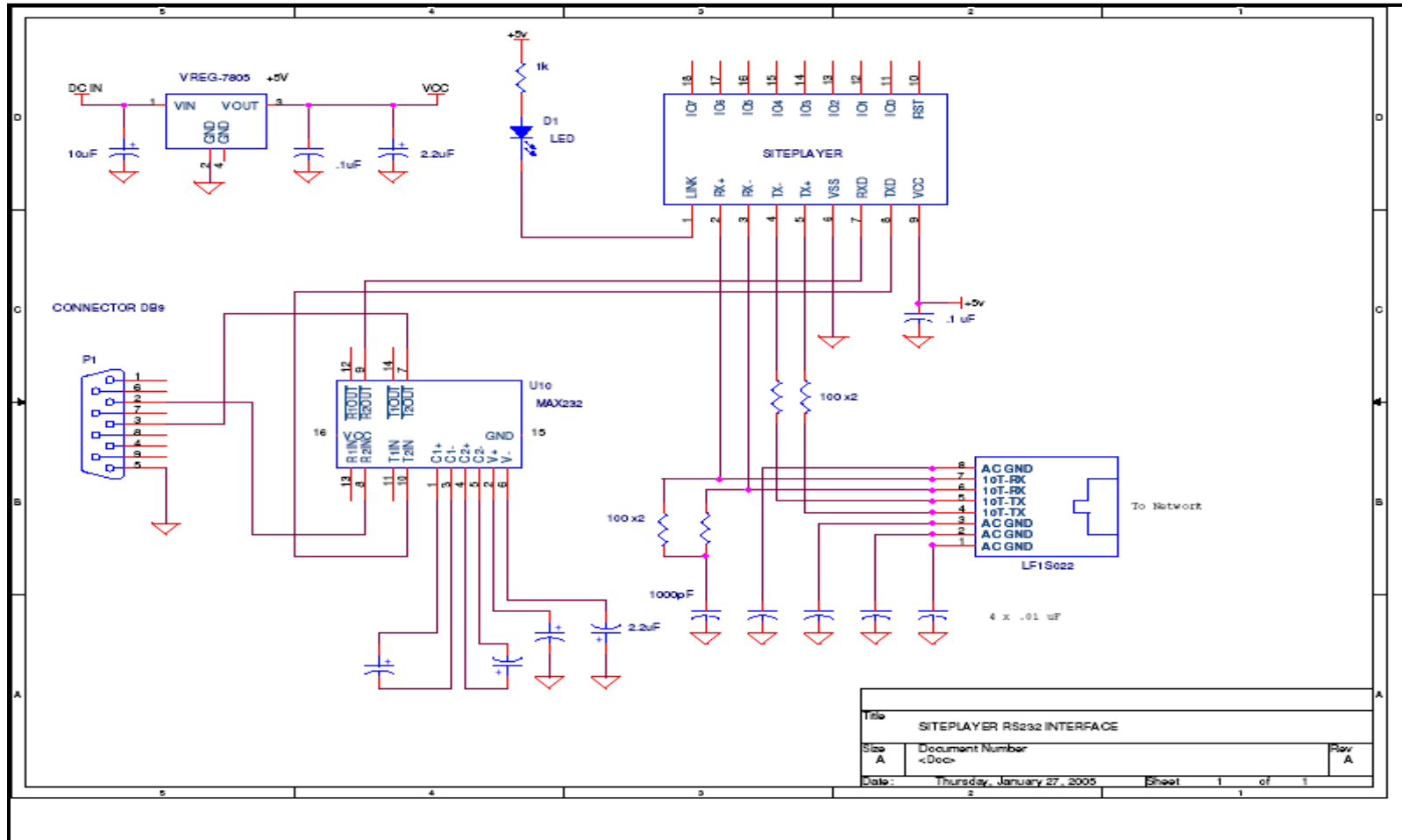
Pin layout

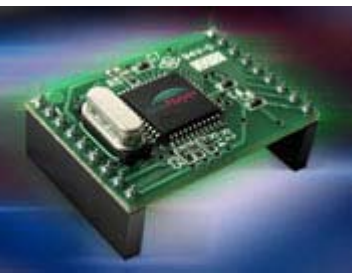
Ben forbindelser

PIN	Funktion	Beskrivelse
1	Link LED	Aktiv lav når Ethernet link er etableret. Typisk til +5V via modstand
2	RX +	10BaseT receive + forbindes typisk til filter/trafo
3	RX -	10BaseT receive - forbindes typisk til filter/trafo
4	TX -	10BaseT transmit - forbindes typisk til filter/trafo
5	TX +	10BaseT transmit + forbindes typisk til filter/trafo
6	GND	Ground (Vss)
7	RXD	Seriell receive data
8	TXD	Seriell transmit data
9	+5V	+5V stabiliseret, forbrug typisk 75mA (Vcc)
10	Reset	Høj => Reset, Lav eller ej forbundet => Running mode
11-18	I/O	Hardware Input/Output IO0-IO7 el. SPI interface (11-SCK, 12-MOSI, 13-MISO, 14-18Chip select)



Siteplayer print





Siteplayer print

- Print udleveres og komponenter



Siteplayer connect

- Ipconfig (DOS kommando)
- Hvad er IP adressen på NIC?
- Er den indenfor 192.168.0.xxx
- Default for SP er 192.168.1.250

```
Windows IP-konfiguration

Værtsnavn. . . . . : miranet-1fbc34b
Primært DNS-suffiks. . . . . :
Nodetype . . . . . : Ukendt
IP-routing aktiveret . . . . . : Nej
WINS-proxy aktiveret . . . . . : Nej

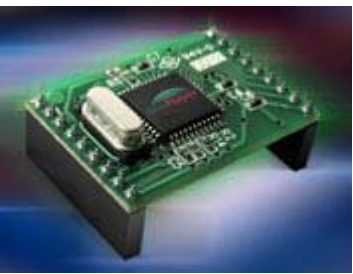
Ethernet-netværkskort LAN-forbindelse 2:

Forbindelsesspecifikt DNS-suffiks. . . . . :
Beskrivelse. . . . . : NVIDIA nForce Networking Co
ntroller
Fysisk adresse . . . . . : 00-11-09-CC-A1-47
Dhcp aktiveret . . . . . : Ja
Automatisk konfiguration aktiveret . . . . . : Ja
IP-adresse . . . . . : 10.10.1.50
Undernetmaske. . . . . : 255.255.255.0
Standardgateway. . . . . : 10.10.1.1
DHCP-server. . . . . : 10.10.1.1
DNS-servere. . . . . : 10.10.1.1
Rettigheden opnået . . . . . : 6. august 2008 10:27:43
Rettigheden udløber. . . . . : 7. august 2008 10:27:43

Ethernet-netværkskort LAN-forbindelse 3:

Medietilstand. . . . . : Mediet afbrudt
Beskrivelse. . . . . : Bluetooth PAN Network Adapt
er
Fysisk adresse . . . . . : 00-11-67-50-CF-9A

C:\WINDOWS>
```

Siteplayer connect

- DHCP (Dynamic Host Configuration Protocol)
- DHCP server
- Små netværk
- Nemt at tilslutte enheder til nettet

Generelt | Alternativ konfiguration

Du kan få IP-indstillinger tildelt automatisk, hvis dit netværk understøtter denne facilitet. Ellers skal du kontakte din netværksadministrator for at få de korrekte IP-indstillinger.

Hent automatisk en IP-adresse

Brug følgende IP-adresse:

IP-adresse:

Undernetmaske:

Standardgateway:

Hent automatisk en DNS-serveradresse

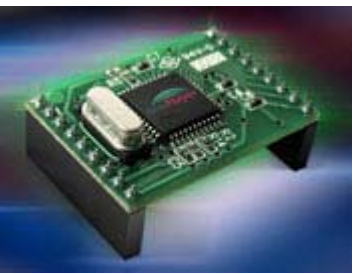
Brug følgende DNS-serveradresser:

Foretrukken DNS-server:

Alternativ DNS-server:

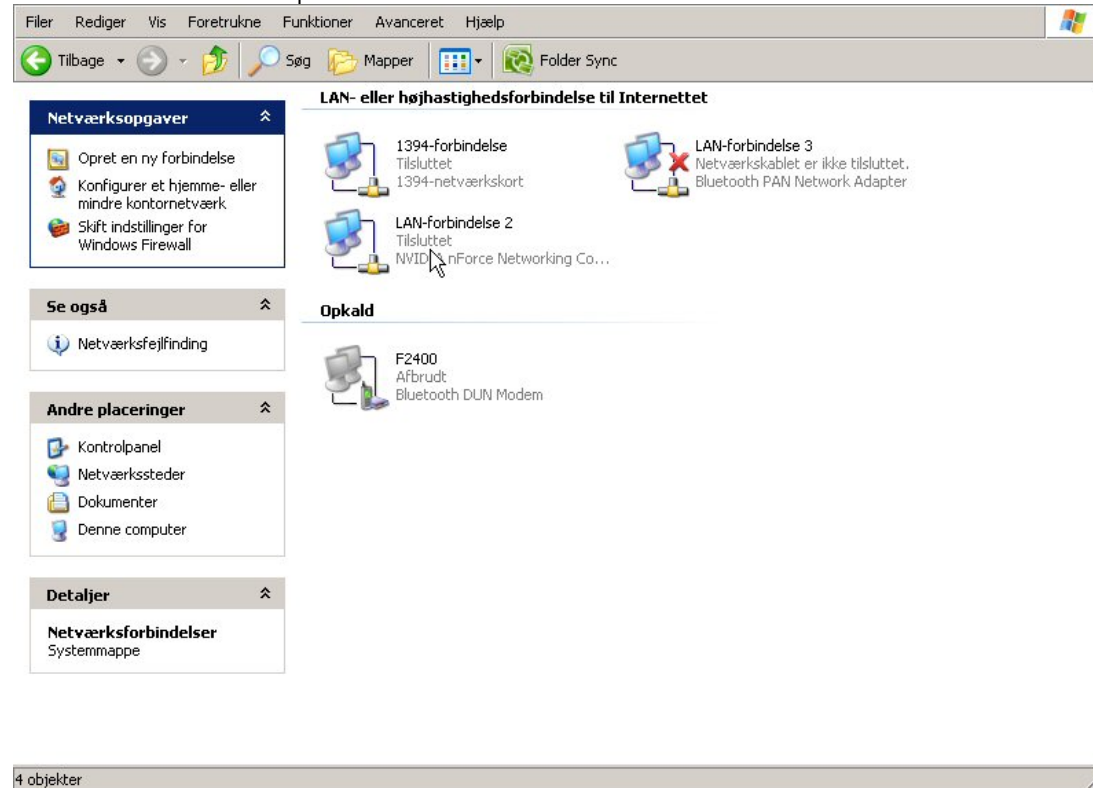
Avanceret...

OK Annuller



Siteplayer connect

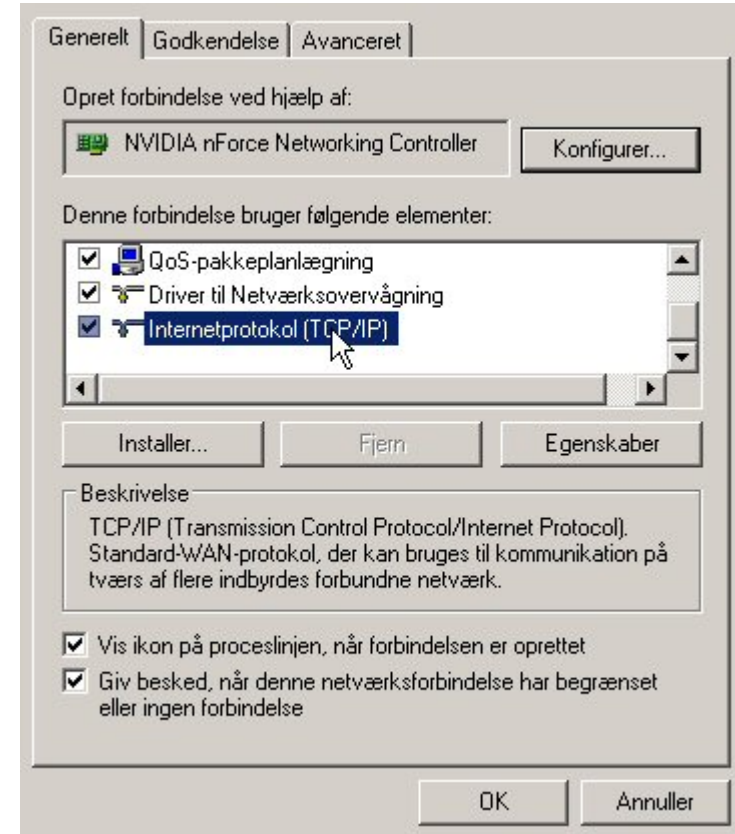
- Ændre NIC indstillinger





Siteplayer connect

- NIC vælges
- Tryk på Egenskaber





Siteplayer connect

- Tryk på "Brug følgende IP adr."
- Siteplayer har default adr. 192.168.1.250
- Og benytter DHCP, det skal ændres til fast IP adr.!!!

Generelt

Du kan få IP-indstillinger tildelt automatisk, hvis dit netværk understøtter denne facilitet. Ellers skal du kontakte din netværksadministrator for at få de korrekte IP-indstillinger.

Hent automatisk en IP-adresse

Brug følgende IP-adresse:

IP-adresse:

Undernetmaske:

Standardgateway:

Hent automatisk en DNS-serveradresse

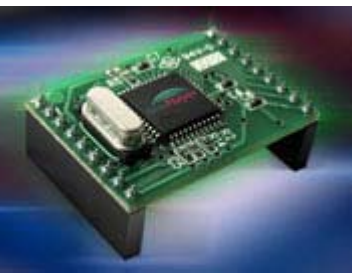
Brug følgende DNS-serveradresser:

Foretrukken DNS-server:

Alternativ DNS-server:

Avanceret...

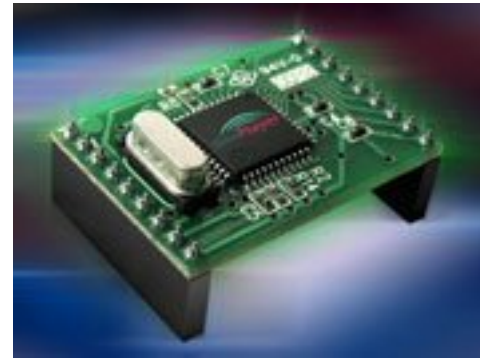
OK Annuller

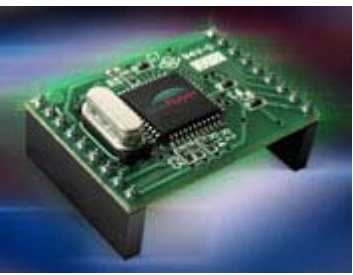


Siteplayer connect



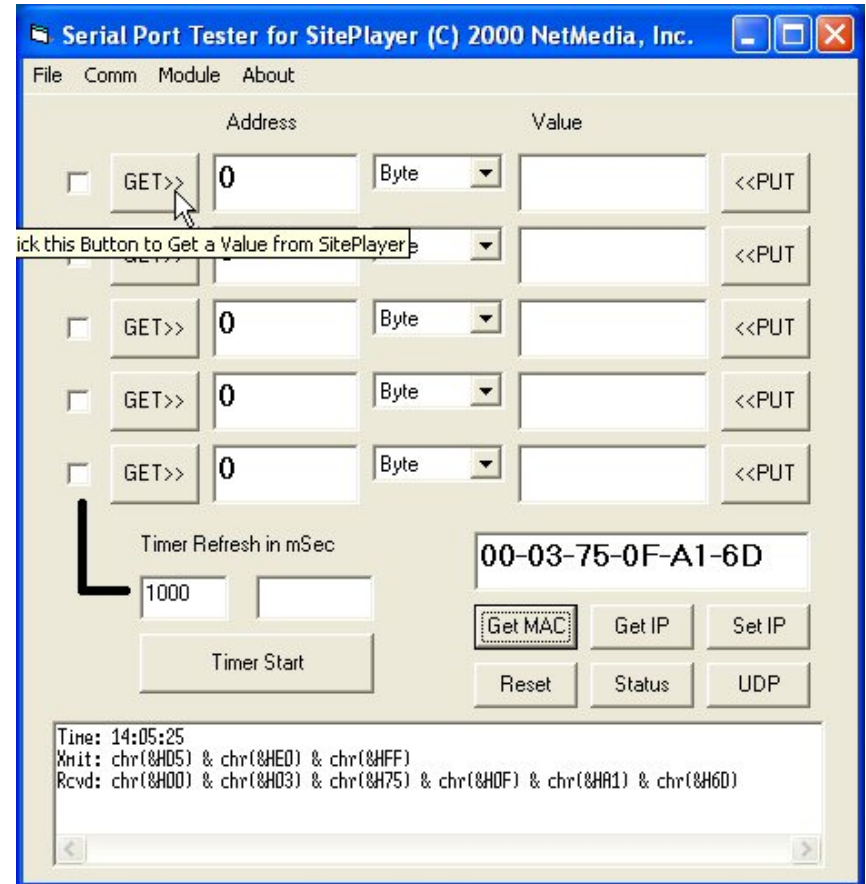
- Tilslut Siteplayer og PC med et netværks kabel!
- Ping 192.168.0.250
- OK?

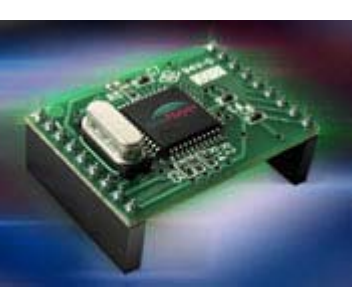




Siteplayer connect

- Tilslut Siteplayer via RS232 kabel!
- Tryk "Get IP" adressen
- Ændre den til 192.168.0.250
- Tryk "Set IP"

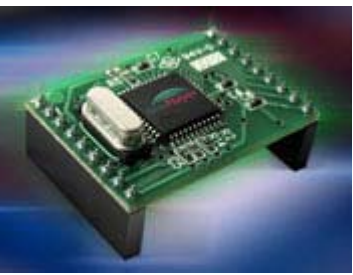




Siteplayer definition

- Factory.SPD
- DHCP Off
- IP adr ændres til 192.168.0.250
- Stierne skal være korrekte!!!
- Program files skal ændres til programmer!!

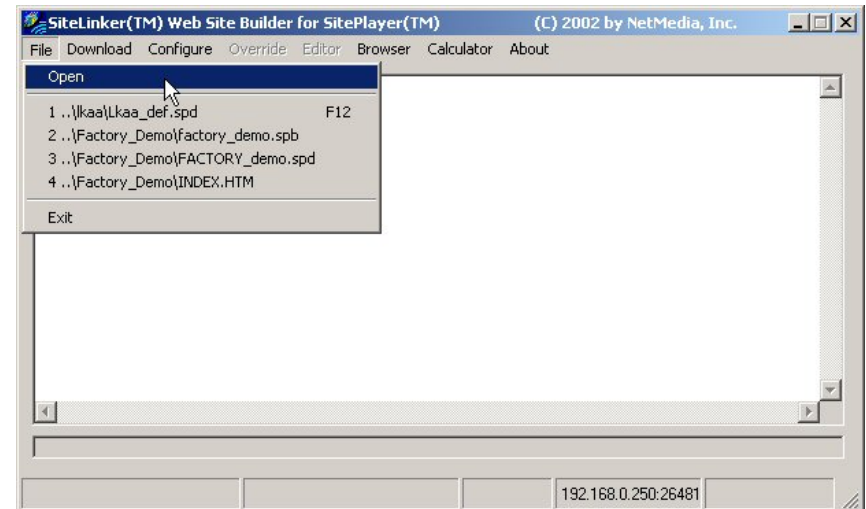
```
;  
; These are initial variables that you can place in your system  
;  
;  
;$Devicename sets the name or description of the device  
$Devicename "SitePlayer(tm) Factory Default Web Page"  
  
;$DHCP on sets SitePlayer to find its IP address from a DHCP server  
$DHCP on  
  
;$DownloadPassword sets password for downloading web pages and firmware  
$DownloadPassword ""  
  
;$InitialIP sets SitePlayer's IP address to use if no DHCP server is available  
$InitialIP "192.168.1.250"  
  
;$PostIRQ on sets SitePlayer to generate a low level IRQ on pin 11  
$PostIRQ off  
  
;$Sitefile sets the binary image filename that will be created  
$Sitefile "C:\Program Files\SitePlayer\factory.spb"  
  
;$Sitepath sets the root path of the web pages for this project  
$Sitepath "C:\Program Files\SitePlayer\Factory_demo"  
  
;$Include sets the name of a file to include during make process  
$Include "C:\Program Files\SitePlayer\pcadef.inc"  
$Include "C:\Program Files\SitePlayer\udpsend_def.inc"
```

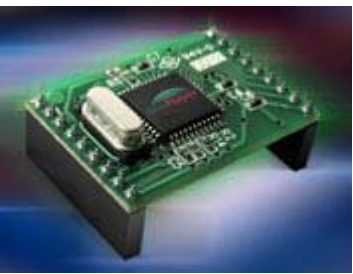


Siteplayer connect



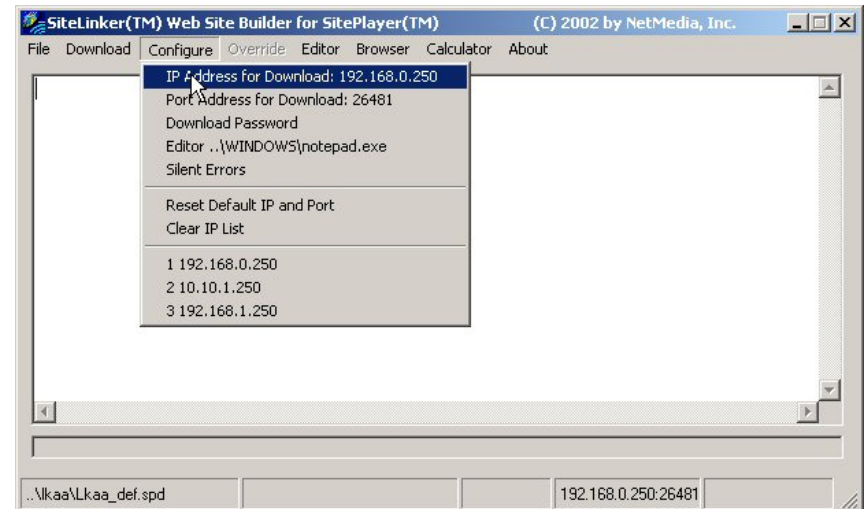
- Start Sitelinker.exe
- File/Open og vælg din *.spd file

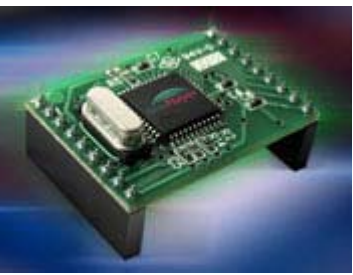




Siteplayer connect

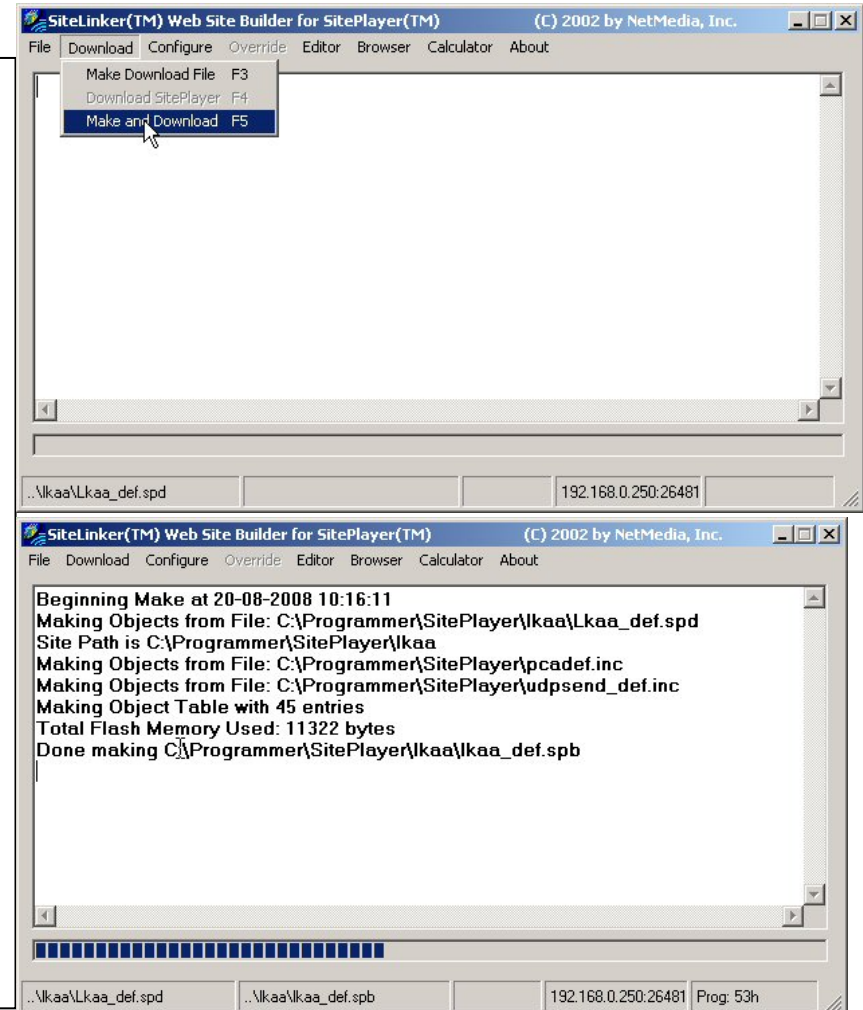
- Tryk på: Configure/IP Adress....
- Sæt adr. til det ønskede!
- Her kan Port nummer ændres, hvis der behov for det!





Siteplayer connect

- Tryk på: F5 eller Download/Make and Download
- Nu generes den endelig kode file til SP





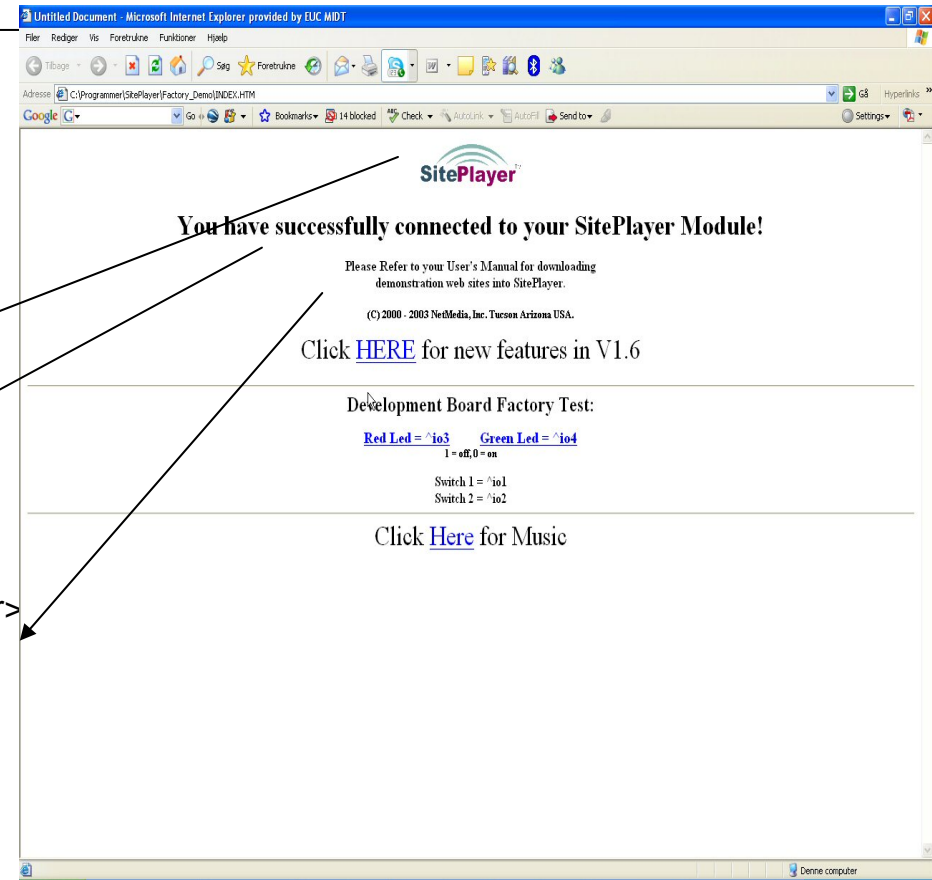
Siteplayer HTML

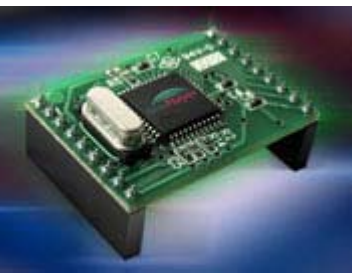
Overskrift, type tegn

- `<html>`
- `<head>`
- `<title>Untitled Document</title>`
- `<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">`
- `</head>`

- `<body bgcolor="#FFFFFF" text="#000000">`
- `<div align="center">
`
- `
`
- `You have successfully connected to your SitePlayer Module!
`
- `
`
- `Please Refer to your User's Manual for downloading
demonstration web sites into SitePlayer.

`
- `(C) 2000 - 2003 NetMedia, Inc. Tucson Arizona USA.
`
- `
`
-
-





Siteplayer HTML

- I et bibliotek under SP ligger der en masse små billeder til fri benyttet til sin egen hjemmeside!
- Der findes også en kommando til automatik opdatering af hjemmesider



Router (port forwarding!)



- Der findes ikke en entydig måde at åbne for en port i en router
- På Mars er en link til en hjemmeside, hvor man kan teste om porten er åben!



Router (port forwarding!)



NETGEAR ProSafe VPN Firewall FVS318v3 settings

Router Status

System Name	FVS318v3
Firmware Version	v3.0_22
WAN Port	
MAC Address	00:18:4d:57:ef:2f
IP Address	10.0.0.4
DHCP	DHCPClient
IP Subnet Mask	255.255.255.0
Domain Name Server	212.242.40.3
	212.242.40.51
LAN Port	
MAC Address	00:18:4d:57:ef:2e
IP Address	192.168.0.1
DHCP	ON
IP Subnet Mask	255.255.255.0

Router Status Help

The *Router Status* page displays current settings and statistics for your router. As this information is read-only, any changes must be made on other pages.

System Name: This is the Account Name that you entered in the *Basic Settings* page.

Firmware Version: This is the current software the router is using. This will change if you upgrade your router.

WAN Port Information: These are the current settings for MAC address, IP address, DHCP role and Subnet Mask that you set in the *Basic Settings* page. DHCP can be either Client or None.

LAN Port Information: These are the current settings for MAC address, IP address, DHCP role and Subnet Mask that you set in the *LAN IP Setup* page. DHCP can be either Server or None.

Click **Show Statistics** to see router performance statistics such as number of packets sent and number of packets received for each port.

Click **WAN Status** to view the current connection state of the WAN port.

Router (port forwarding!)



The screenshot shows a web browser window displaying the configuration page for a NETGEAR ProSafe VPN Firewall FVS318v3. The page title is "settings". The left sidebar contains a navigation menu with categories: Setup (Basic Settings), Security (Logs, Block Sites, Rules, Services, Schedule, E-mail), VPN (VPN Wizard, IKE Policies, VPN Policies, CAS, Certificates, CRL, VPN Status), Maintenance (Router Status, Attached Devices, Settings Backup, Set Password, Diagnostics, Router Upgrade), and Advanced (Dynamic DNS, LAN Setup, Remote Management, Static Routes). The main content area is titled "Inbound Services" and contains the following fields:

- Service: Siteplayer(TCP/UDP:26481..26482)
- Action: ALLOW always
- Send to LAN Server: 0 . 0 . 0 . 0
- WAN Users: Any
- start: 0 . 0 . 0 . 0
- finish: 0 . 0 . 0 . 0
- Log: Match

At the bottom of the form are three buttons: Back, Apply, and Cancel. A mouse cursor is pointing at the Apply button.

On the right side, there is a "Inbound Service Help" section with the following text:

You can use this screen to define a new Inbound Firewall rule, or edit an existing rule. Firewall rules can be used to block or allow specific traffic. **This feature is for Advanced Administrators only!** Incorrect configuration will cause serious problems.

Services
Select the desired Service. This determines which packets are covered by this rule. If necessary, you can define a new Service on the "Services" screen, by defining the protocols and port numbers used by the Service.

Action
Select the desired action for packets covered by this rule:

- ALLOW always
- ALLOW by schedule, otherwise Block
- BLOCK always
- BLOCK by schedule, otherwise Allow

Note:

- Any inbound traffic which is not allowed by rules you create will be blocked by the Default rule.
- BLOCK rules are only useful if the traffic is already covered by an ALLOW rule. (That is, you wish to block a sub-set of traffic which is currently allowed by another rule.)
- To define the Schedule used in these selections, use the "Schedule" screen.

LAN Server
Enter the IP address of the PC or Server on your LAN which will receive the inbound traffic covered by this rule.

WAN Users
These settings determine which packets are covered by the rule, based on their source (WAN) IP address. Select the desired option:

- Any All IP addresses are covered by this rule.
- Address range If this option is selected, you must enter

Router (port forwarding!)

The screenshot shows the configuration interface for a Netgear ProSafe VPN Firewall FVS318v3. The browser address bar shows `http://www.routerlogin.net/start.htm`. The page title is "NETGEAR ProSafe VPN Firewall FVS318v3 settings".

Left Navigation Menu:

- Setup
 - Basic Settings
- Security
 - Logs
 - Block Sites
 - Rules
 - Services
 - Schedule
 - E-mail
- VPN
 - VPN Wizard
 - IKE Policies
 - VPN Policies
 - CAs
 - Certificates
 - CRL
 - VPN Status
- Maintenance
 - Router Status
 - Attached Devices
 - Settings Backup
 - Set Password
 - Diagnostics
 - Router Upgrade
- Advanced
 - Dynamic DNS
 - LAN Setup
 - Remote Management
 - Static Routes

Main Content Area: Outbound Services

Service: Siteplayer(TCP/UDP:26481..26482)
Action: ALLOW always

LAN Users: Any
start: 0 . 0 . 0 . 0
finish: 0 . 0 . 0 . 0

WAN Users: Any
start: 0 . 0 . 0 . 0
finish: 0 . 0 . 0 . 0

Log: Match

Buttons: Back, Apply, Cancel

Outbound Service Help

You can use this screen to define a new Outbound Firewall rule, or edit an existing rule. Outbound Firewall rules are used to block or allow access by computers on your network to services or applications on the Internet.

Services
Select the desired Service or application to be covered by this rule. If the desired service or application does not appear in the list, you must define it using the Services menu.

Action
Select the desired action for packets covered by this rule:

- BLOCK always
- BLOCK by schedule, otherwise Allow
- ALLOW always
- ALLOW by schedule, otherwise Block

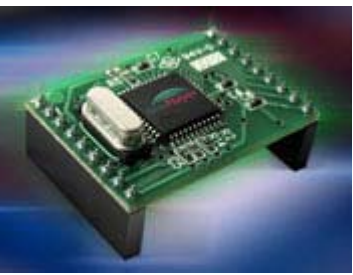
Note:

- Any outbound traffic which is not blocked by rules you create will be allowed by the Default rule.
- ALLOW rules are only useful if the traffic is already covered by a BLOCK rule. (That is, you wish to allow a subset of traffic which is currently blocked by another rule.)
- To define the Schedule used in these selections, use the "Schedule" screen.

LAN users
These settings determine which computers on your network are affected by this rule, based on their source (LAN) IP address. Select the desired option:

- Any - All local IP addresses are covered by this rule.
- Address range - If this option is selected, you must enter the "Start" and "Finish" fields.
- Single address - Enter the required address in the "Start" fields.

WAN Servers



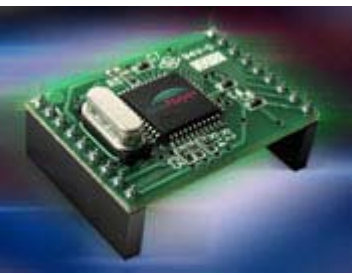
Hjælp

- Der er links på Mars under Siteplayer og der bliver også udleveret materiale der kan hjælpe jer på vej de næst 2 dage!



Projekter

- Tænd og slukke med SP og se om en kontakt åben eller lukket?
- Tilslut en AD-konverter og vis måling på SP hjemmesiden?
- Tilslut en PIC via seriel interface og vis data på SP hjemmesiden?



Viktigt!!

- For hver SP der mangler på fredag bliver alle trukket en karakter ned!!!