low-power ARM-based pax/grsec-enabled server

aka ISO 14001 Cloud - Take 3

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RUMP @ SSTIC2015

Dans l'épisode précédent ...

NETGEAR ReadyNAS 102

- SoC Marvell Armada 370 @1.2 GHz (**ARMv7 : Bit NX, FPU)**
- 512 MB RAM, 128 MB NAND
- 1 GbE, 2 USB 3.0, 1 USB 2.0, 1 eSATA, 2 ports SATA
- Console série 3.3v accessible
- 100 €

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- 512 MB RAM, 128 MB NAND
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- Console série 3.3v accessible
- 100 € [150 € pour le RN104 (4-baies / 2 GbE / LCD)]

Bottom line

Tous les NAS NETGEAR à base d'ARM sont maintenant supportés **mainline**

- **Duo v2** : 2 DD, ARMv5TE, 256MB RAM, 1 GbE
- **NV+ v2** : 4 DD, ARMv5TE, 256MB RAM, 1 GbE
- **RN102** : 2 DD, **ARMv7**, 512MB RAM, 1 GbE, USB 3.0, eSATA
- **RN104** : 4 DD, **ARMv7**, 512MB RAM, 2 GbE, USB 3.0, eSATA
- **RN2120** : 4 DD, **1U**, **2-core ARMv7**, 2GB, 2GbE, USB 3.0, eSATA

http://natisbad.org/nas-kernels

Kernel version 3.17.1-grsec-201410192051

Duo v2	uImage-3.17.1-grsec-201410192051.duo_v2	[sig] [config] [instructions]
NV+ v2	uImage-3.17.1-grsec-201410192051.nv+_v2	[sig] [config] [instructions]
RN102	uImage-3.17.1-grsec-201410192051.rn102	[sig] [config] [instructions]
RN104	uImage-3.17.1-grsec-201410192051.rn104	[sig] [config] [instructions]
RN2120	uImage-3.17.1-grsec-201410192051.rn2120	[sig] [config] [instructions]

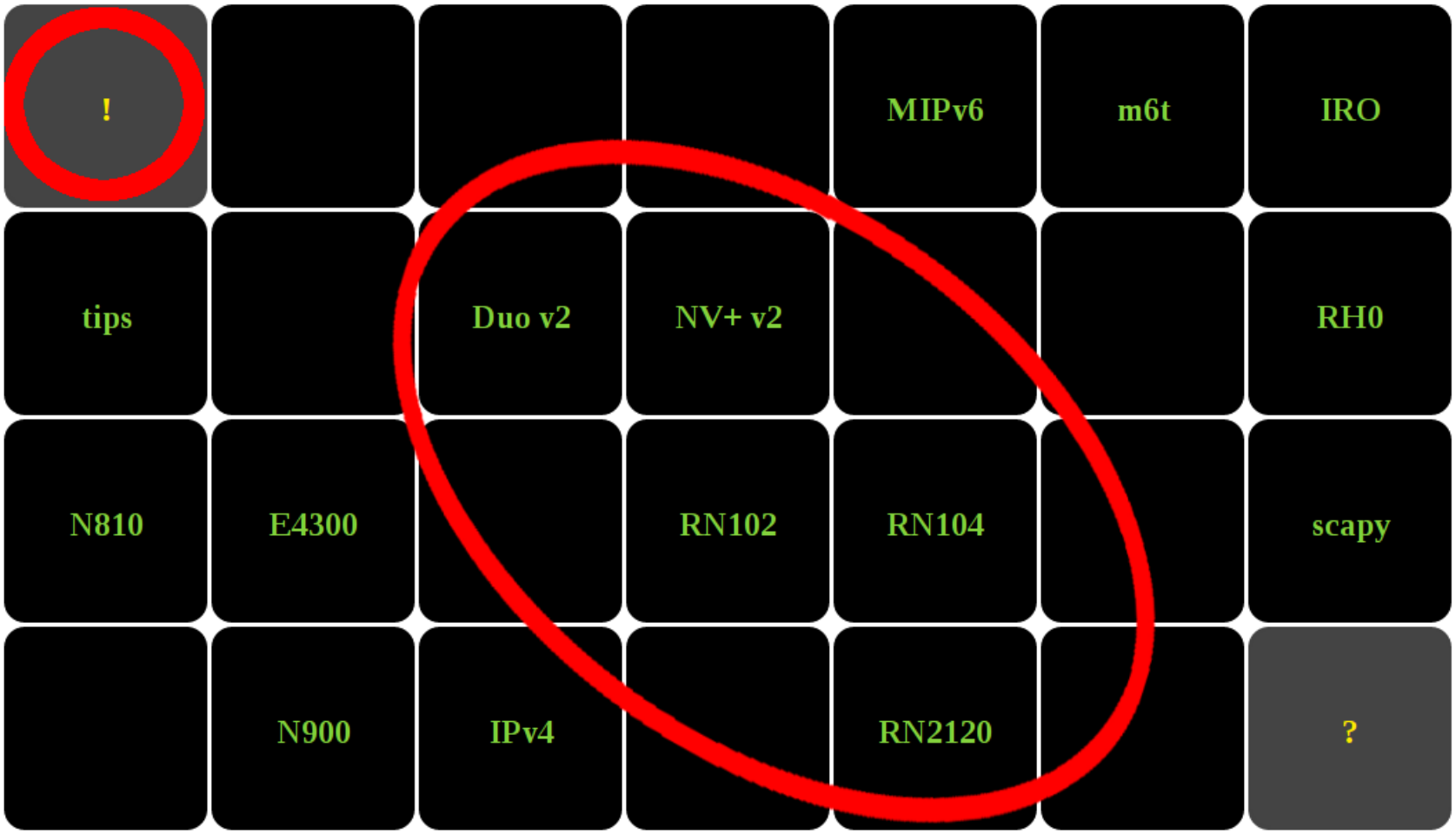
Kernel version 3.17.1

Duo v2	uImage-3.17.1.duo_v2	[sig] [config] [instructions]
NV+ v2	uImage-3.17.1.nv+_v2	[sig] [config] [instructions]
RN102	uImage-3.17.1.rn102	[sig] [config] [instructions]
RN104	uImage-3.17.1.rn104	[sig] [config] [instructions]
RN2120	uImage-3.17.1.rn2120	[sig] [config] [instructions]

Kernel version 3.16.6-grsec-201410092056

Duo v2	uImage-3.16.6-grsec-201410092056.duo_v2	[sig] [config] [instructions]
NV+ v2	uImage-3.16.6-grsec-201410092056.nv+_v2	[sig] [config] [instructions]
RN102	uImage-3.16.6-grsec-201410092056.rn102	[sig] [config] [instructions]
RN104	uImage-3.16.6-grsec-201410092056.rn104	[sig] [config] [instructions]
RN2120	uImage-3.16.6-grsec-201410092056.rn2120	[sig] [config] [instructions]

http://natisbad.org/



Depuis l'année dernière ...

Synology DS414 (4 baies, bi-coeur Armada XP @1.33GHz, 380€)

source : http://img.gfx.no/1330/1330978/Synology_DS414_frontav.jpg

Synology DS414 (4 baies, bi-coeur Armada XP @1.33GHz, 380€)

source : http://img.gfx.no/1330/1330978/Synology_DS414_frontav.jpg

Synology DS213j (2-bay, single core Armada 370, 190€)

source : http://ecx.images-amazon.com/images/I/51HECSR57DL._SL1024_.jpg

Synology DS213j (2-bay, single core Armada 370, 190€)

source : http://ecx.images-amazon.com/images/I/51HECSR57DL._SL1024_.jpg

En cours ...

Développement en cours d'un support complet pour l'engine crypto du SoC (CESA)

Ce que sait faire le CESA

- SHA-256, SHA-1, MD5 (et HMAC associés)
- AES-128, AES-192, AES-256 / modes ECB et CBC
- Engine DMA

Depuis l'année dernière

- Travail avec Boris Brezillon (@free-electrons)
- Soumission en cours

crypto: add a new driver for Marvell's CESA

From:	Boris Brezillon <boris.brezillon@free-electrons.com>
To:	Herbert Xu <herbert@gondor.apana.org.au>, "David S. Miller" <davem@davemloft.net>, linux-crypto@vger.kernel.org
Subject:	[PATCH v3 0/2] crypto: add a new driver for Marvell's CESA
Date:	Fri, 22 May 2015 15:33:46 +0200
Message-ID:	<1432301642-11470-1-git-send-email-boris.brezillon@free-electrons.com>
Cc:	Boris Brezillon <boris.brezillon@free-electrons.com>, Arnaud Ebalard <arno@natisbad.org>, Thomas Petazzoni <thomas.petazzoni@free-electrons.com>, Gregory CLEMENT <gregory.clement@free-electrons.com>, Jason Cooper <jason@lakedaemon.net>, Sebastian Hesselbarth <sebastian.hesselbarth@gmail.com>, Andrew Lunn <andrew@lunn.ch>, Tawfik Bayouk <tawfik@marvell.com>, Lior Amsalem <alior@marvell.com>, Nadav Haklai <nadavh@marvell.com>, Eran Ben-Avi <benavi@marvell.com>, Rob Herring <robh+dt@kernel.org>, Pawel Moll <pawel.moll@arm.com>, Mark Rutland <mark.rutland@arm.com>, Ian Campbell <ijc+devicetree@hellion.org.uk>, Kumar Gala <galak@codeaurora.org>, devicetree@vger.kernel.org
Archive-link:	Article, Thread

crypto: add a new driver for Marvell's CESA

From: Boris Brezillon <boris.brezillon@free-electrons.com>

To: Herbert Xu <herbert@gondor.apana.org.au>, "David S. Miller" <davem@davemloft.net>, linux-crypto@vger.kernel.org

Subject: [PATCH v3 0/2] crypto: add a new driver for Marvell's CESA

Date: Fri, 22 May 2015 15:33:46 +0200

Message-ID: <1432301642-11470-1-git-send-email-boris.brezillon@free-electrons.com>

Cc: Boris Brezillon <boris.brezillon@free-electrons.com>, Arnaud Ebalard <arno@natisbad.org>, Thomas Petazzoni <thomas.petazzoni@free-electrons.com>, Gregory CLEMENT <gregory.clement@free-electrons.com>, Jason Cooper <jason@lakedaemon.net>, Sebastian Hesselbarth <sebastian.hesselbarth@gmail.com>, Andrew Lunn <andrew@lunn.ch>, Tawfik Bayouk <tawfik@marvell.com>, Lior Amsalem <alior@marvell.com>, Nadav Haklai <nadavh@marvell.com>, Eran Ben-Avi <benavi@marvell.com>, Rob Herring <robh+dt@kernel.org>, Pawel Moll <pawel.moll@arm.com>, Mark Rutland <mark.rutland@arm.com>, Ian Campbell <ijc+devicetree@hellion.org.uk>, Kumar Gala <galak@codeaurora.org>, devicetree@vger.kernel.org

Archive-link: Article, Thread

```
.../devicetree/bindings/crypto/marvell-cesa.txt    |   46 +
arch/arm/boot/dts/armada-370.dtsi                  |   20 +
arch/arm/boot/dts/armada-xp-gp.dts                 |    4 +-
arch/arm/boot/dts/armada-xp.dtsi                   |   31 +
arch/arm/boot/dts/kirkwood.dtsi                    |    2 +-
drivers/crypto/Kconfig                             |   18 +
drivers/crypto/Makefile                            |    1 +
drivers/crypto/marvell/Makefile                    |    2 +
drivers/crypto/marvell/cesa.c                      |  543 ++++++++
drivers/crypto/marvell/cesa.h                      |  804 ++++++++++++
drivers/crypto/marvell/cipher.c                    |  769 +++++++++++
drivers/crypto/marvell/hash.c                      | 1349 +++++++++++++++++++++
drivers/crypto/marvell/tdma.c                      |  224 ++++
drivers/crypto/mv_cesa.c                           |   13 +-
14 files changed, 3816 insertions(+), 10 deletions(-)
create mode 100644 Documentation/devicetree/bindings/crypto/marvell-cesa.txt
create mode 100644 drivers/crypto/marvell/Makefile
create mode 100644 drivers/crypto/marvell/cesa.c
create mode 100644 drivers/crypto/marvell/cesa.h
create mode 100644 drivers/crypto/marvell/cipher.c
create mode 100644 drivers/crypto/marvell/hash.c
create mode 100644 drivers/crypto/marvell/tdma.c
```

```
.../devicetree/bindings/crypto/marvell-cesa.txt    |   46 +
arch/arm/boot/dts/armada-370.dtsi                  |   20 +
arch/arm/boot/dts/armada-xp-gp.dts                 |    4 +-
arch/arm/boot/dts/armada-xp.dtsi                   |   31 +
arch/arm/boot/dts/kirkwood.dtsi                    |    2 +-
drivers/crypto/Kconfig                             |   18 +
drivers/crypto/Makefile                            |    1 +
drivers/crypto/marvell/Makefile                    |    2 +
drivers/crypto/marvell/cesa.c                      |  543 ++++++++
drivers/crypto/marvell/cesa.h                      |  804 ++++++++++++
drivers/crypto/marvell/cipher.c                    |  769 +++++++++++
drivers/crypto/marvell/hash.c                      | 1349 +++++++++++++++++++++
drivers/crypto/marvell/tdma.c                      |  224 ++++
drivers/crypto/mv_cesa.c                           |   13 +-
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create mode 100644 drivers/crypto/marvell/cesa.c
create mode 100644 drivers/crypto/marvell/cesa.h
create mode 100644 drivers/crypto/marvell/cipher.c
create mode 100644 drivers/crypto/marvell/hash.c
create mode 100644 drivers/crypto/marvell/tdma.c
```

ReadyNAS 204 (4 baies, bi-coeur Cortex A15 AL212 @1.4GHz), 400€)

source : http://www.materiel.net/live/303076.jpg

"Annapurna Labs put together some of the best talent to address significant industry challenges. In my experience, their talent, innovation, and open culture is unmatched in the semiconductor industry."

Avigdor Willenz,
Founder & CEO of Galileo Technology

Q ?