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Alimentation et batterie

Marché de la science 2020-2021

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L'alimentation

Bloc d'alimentation

PSU (Power Supply Unit)

Conversion du courant alternatif en
courant continu

Fournit l'énergie à tous les
composants



Les types d'alimentation

Format

Modularité

Refroidissement



Les caractéristiques de l'alimentation

Puissance

Rails

Rendement

Sécurité

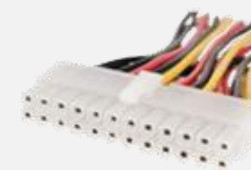
Connectique

PSU Load	Certification						
	Unrated	80 PLUS	80 PLUS BRONZE	80 PLUS SILVER	80 PLUS GOLD	80 PLUS PLATINUM	80 PLUS TITANIUM
20%	Efficiency: 70%	Efficiency: 80%	Efficiency: 82%	Efficiency: 85%	Efficiency: 87%	Efficiency: 90%	Efficiency: 92%
50%	Efficiency: 70%	Efficiency: 80%	Efficiency: 85%	Efficiency: 88%	Efficiency: 90%	Efficiency: 92%	Efficiency: 94%
100%	Efficiency: 70%	Efficiency: 80%	Efficiency: 82%	Efficiency: 85%	Efficiency: 87%	Efficiency: 89%	Efficiency: 90%

Source : OuterVision.com



Connecteur 4+4 broches (processeur)



Connecteur ATX 24 broches (carte mère)



Connecteur SATA (disque dur, SSD...)



Molex (ventilateurs, disque dur...)



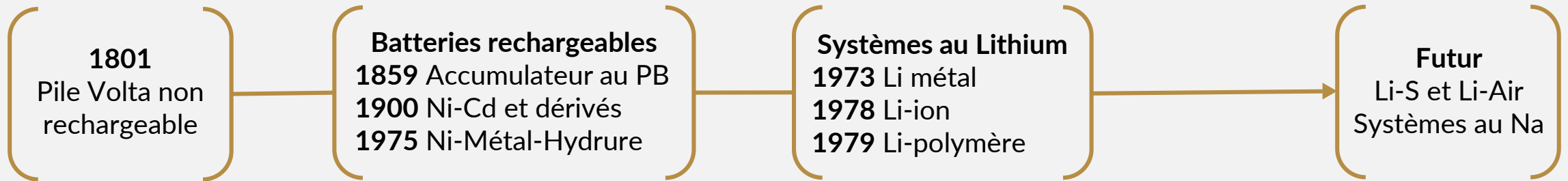
PCI-Express 6+2 broches (carte graphique)

La batterie



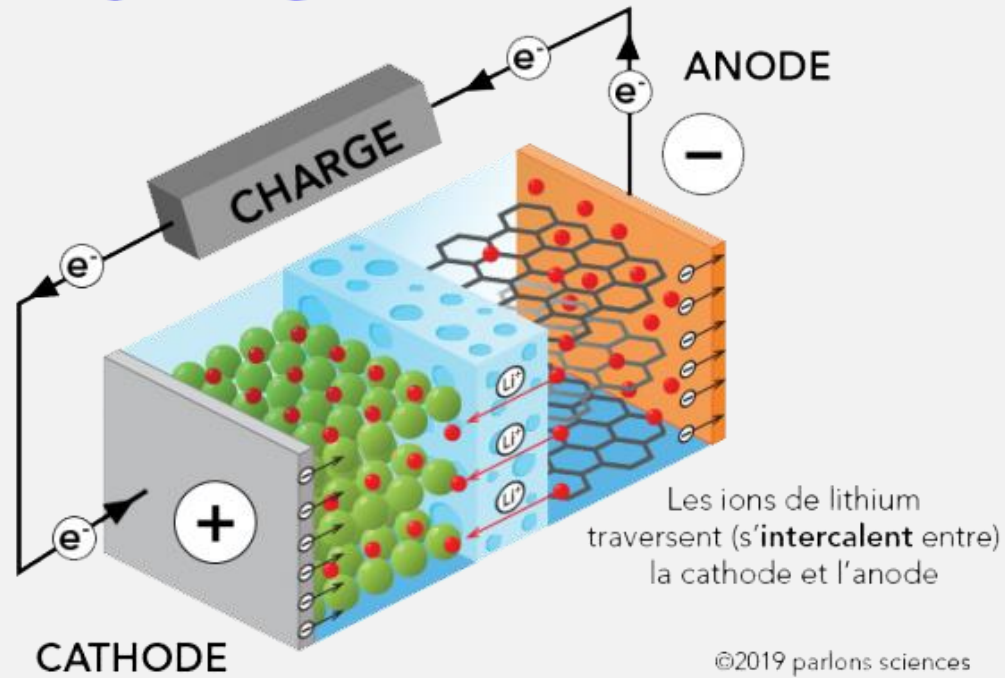
- Constituée d'un ou plusieurs accumulateurs (cellules)
- Stocke réversiblement l'énergie électrique sous forme chimique (charge)
- Restitue l'énergie sous forme électrique (décharge)

Historique de la batterie

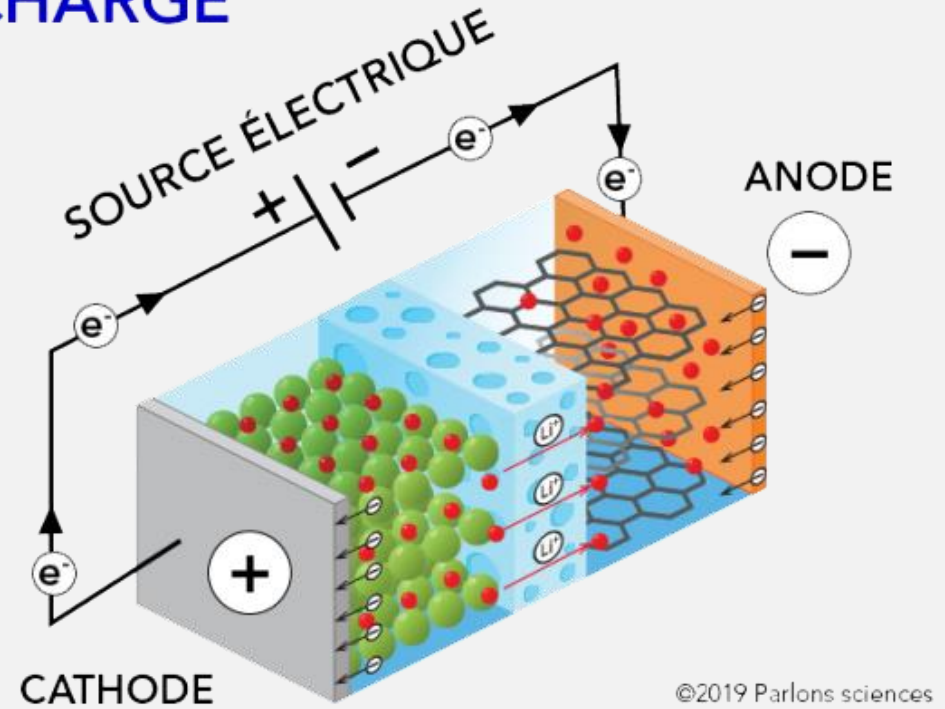


Fonctionnement de la batterie

DÉCHARGE



CHARGE

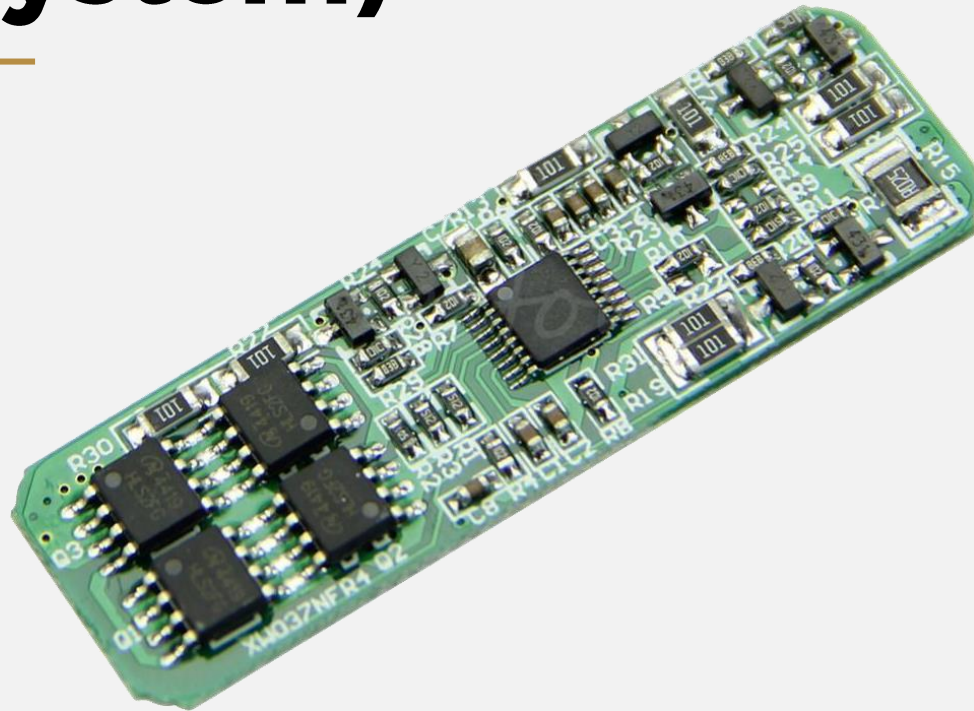


Caractéristiques de la batterie lithium-ion (Li-ion)



- Charge rapide/charge de maintien
- Légère
- Cycles de charge
- Surcharge/Décharge
- Densité d'énergie allant jusqu'à 200 Wh/kg
- Pas d'effet mémoire
- Autodécharge de 10 % par mois
- 1000 cycles
- Faible durée de vie

Dangers et BMS (Battery Management System)



Cas critiques

- Surcharge
- Recharge après décharge profonde
- Court-circuit
- Températures trop fortes ou trop faibles

Conséquences

- Diminution des performances
- Diminution de la durée de vie
- Risque d'incendie

Texte à traduire

THE BASICS

A battery is made up of an anode, cathode, separator, electrolyte, and two current collectors (positive and negative). The anode and cathode store the lithium. The electrolyte carries positively charged lithium ions from the anode to the cathode and vice versa through the separator. The movement of the lithium ions creates free electrons in the anode which creates a charge at the positive current collector. The electrical current then flows from the current collector through a device being powered (cell phone, computer, etc.) to the negative current collector. The separator blocks the flow of electrons inside the battery.

CHARGE/DISCHARGE

While the battery is discharging and providing an electric current, the anode releases lithium ions to the cathode, generating a flow of electrons from one side to the other. When plugging in the device, the opposite happens: Lithium ions are released by the cathode and received by the anode.

ENERGY DENSITY VS. POWER DENSITY

The two most common concepts associated with batteries are energy density and power density. Energy density is measured in watt-hours per kilogram (Wh/kg) and is the amount of energy the battery can store with respect to its mass. Power density is measured in watts per kilogram (W/kg) and is the amount of power that can be generated by the battery with respect to its mass. To draw a clearer picture, think of draining a pool. Energy density is similar to the size of the pool, while power density is comparable to draining the pool as quickly as possible.

[...]

Source : <https://www.energy.gov/eere/articles/how-does-lithium-ion-battery-work#:~:text=The%20electrolyte%20carries%20positively%20charged,at%20the%20positive%20current%20collector.&text=The%20separator%20blocks%20the%20flow%20of%20electrons%20inside%20the%20battery>

Glossaire

Termes EN

- Lithium-Ion battery
- Battery
- Anode
- Cathode
- Separator
- Electrolyte
- Current collector
- Ion
- Electron
- Power (verb)
- Charge
- Discharge
- Electric current
- Energy density
- Power density
- Power (noun)
- Watt-hour per kilogram (Wh/kg)
- Watt per kilogram W/kg

Termes FR

- Batterie lithium-ion (Li-on)
- Batterie/accumulateur/pile
- Anode
- Cathode
- Séparateur
- Électrolyte
- Collecteur de courant
- Ion
- Électron
- Alimenter
- Charge
- Décharge
- Courant électrique
- Densité d'énergie
- Densité de puissance
- Énergie électrique
- Wattheure par kilogramme (Wh/kg)
- Watt par kilogramme (W/kg)

Sources

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